The Infantry School
MAILING LIST

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Containing the Latest Thought on Infantry

VOLUME XXVII

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PREFACE

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CHAPTER 1

Preparation For Leadership

This chapter is an adaptation of the second and third periods of the Military Leadership instruction presented to Officer Candidates at The Infantry School. It follows the instruction given in Chapter 7, Volume XXVI, The Mailing List. An outline of this entire course is presented on pages 28 to 30. Although originally designed for presentation to Officer Candidates, this course can readily be adapted for use in unit officer and noncommissioned officer schools.

A regimental commander with extensive combat experience recently said in a talk to his junior officers:

> Small-unit leaders must be chosen carefully; in war it is the MAN that matters.
>
> The platoon leader or the company commander must possess genuine leadership. He must have initiative; he must have the drive to get things done; he must have that character and ability which inspire confidence in others.
>
> His leadership is measured by his ability to radiate confidence in the success of the plan of battle, when inwardly he is not too sure of its outcome.
>
> The junior officer must have THAT MORAL COURAGE, THAT RESOLUTION, AND THAT DETERMINATION which will enable him to stand firm when the issue hangs in the balance.

General Sir Bernard L. Montgomery has expressed very similar ideas on the qualities of leadership necessary in the subaltern, and the commanding general's insistence upon these qualities is one of the secrets of the outstanding success of the British Eighth Army.

Modern tactics place heavy responsibilities on the shoulders of the small-unit commander. When battle is once joined, success or failure passes into his hands. When he arrives on the field of battle he must be capable of accomplishing his mission. He must have courage and self-confidence; he must use initiative—in short, he must be *a leader*. If the junior officer cannot apply in combat what he has learned in training, if he will not act without prodding, if he has not confidence to meet the situations which confront him, he is mentally unprepared for battle and is a menace to the success of the tactical plan and a threat to the lives of American soldiers in combat.

When a squad, a platoon, a company, or a battalion arrives in a combat area, it must be a fighting team. Each man in the team must not only know his job but also realize his obligations to the other members of the team. This unity of purpose and action is made possible only through the effective leadership of the unit commander. If such leadership is missing, the unit falls an easy prey to disorganization and chaos. Men will be killed unnecessarily, and the survivors will drift away in search of a leader in whom they have confidence. Those who do not attach themselves to another fighting unit will hunt a shell-hole and hide there until the battle is over. Blame them if you will, call them slackers if you must, but remember that no man will go to what he feels is futile and meaningless death under an officer in whom he has no confidence.

Unfortunately, instances too often occur in action where a small-unit commander suddenly realizes that he has lost most of his men. The missing are reported as either killed or wounded. After the battle, to the chagrin and embarrassment of the officer who has made the report, the "dead" and "wounded" return to the unit in its rest area.

The following summary of casualties is taken from the official First World War records, and was submitted by a company commander at the close of the final day of action on the battlefield:

Company Report

	Officers	*Enlisted Men*
Men entering engagement	6	206
Killed	1	22
Dead of wounds	1	7
Shell shocked		4
Wounded	2	100
Missing (Returned next day)	1	49
Reached objective	1	18
Runners		6

The objective was reached and that is the one bright spot in the picture. One officer reached the objective with 18 men. He had at least some of the qualities of good leadership, but the company as a whole demonstrated a deplorable lack of leadership both in its period of training and on the battlefield. Had effective leadership been maintained during training and on into combat, 50 additional men would have been available for the defense of the captured objective. The losses of the company during this operation would have been considerably less than the 22 men killed and 100 men wounded. Leadership would have made this unit an effective fighting team; absence of leadership resulted in unnecessary losses in the fighting strength of the company and increased the probabilities of failure in accomplishing the mission.

Lack of leadership among junior officers is evidenced by the number of them who reach the battlefield mentally unprepared for the dangers and the strain of combat. The first shock of battle upsets their mental stability, and panic overtakes them at the very moment when a courageous personal example is most needed by their men. Officers who do not apply in action the lessons they were taught in training are the individuals who have failed to think ahead and condition their minds against the impact of battle. The human mind naturally shrinks from difficult and disagreeable problems, and the lost commanders in combat are those who had been too lazy or too indifferent to think of the future and prepare themselves for the life and death responsibilities of the battlefield.

Why do certain of our officers take their coming battle responsibilities so lightly? Perhaps it is because the combat areas are from 3,000 to 15,000 miles away, and the indifferent officer feels that he will have plenty of time for mental conditioning once he has boarded plane or transport for the battle zone. Thinking of danger, death, and responsibility for other men's lives is unpleasant, so he puts it off until tomorrow and tomorrow still finds him unprepared in the midst of combat.

For the junior officer to reach the battlefield a fully prepared leader of a fighting team, he must live war and make his men live war throughout all the training period. He must visualize battle conditions behind every training situation, and must teach his men to work with the same zeal and precision that he will expect of them under actual fire.

Action in battle is largely a matter of habit. When first under fire, soldiers will do what they have learned by careful training. What they have not been thoroughly taught will be forgotten at the initial sounds of enemy shells and bullets. Men who were allowed to bunch in training will do the same thing under hostile fire. Men who were permitted to disregard the proper use of cover in tactical exercises and maneuvers will carry the same deadly habit onto the battlefield. Avoidable deaths and wounds in his unit are the price which will be paid by the negligent officer who does not school his men to live war in every phase of their training.

An officer should not only think of all training situations in terms of battle, but he should constantly imagine and visualize combat problems which might confront him. He should think these situations through, solve them, make plans to meet them, and prepare orders to carry out the plans. He should keep in mind how he can accomplish the particular mission which is placed in his hands, which may be vital to the success of the overall battle plan. In doing all this he must never forget the necessity for conserving the strength of his fighting team. He will not be able to

think through every possible battle situation, but every one which he has solved in his mind will aid in preparing him for actual and unexpected combat emergencies.

The combat success of a junior officer depends upon ability to develop his leadership and train his men. Leadership is often looked upon as an intangible thing which an individual naturally possesses, but cannot acquire. Yet military leadership is not intangible, nor is it necessarily inherent. It may be defined as the art of imposing one's will upon others, or as the faculty of directing, controlling, and influencing others in a definite line of action. For the sake of simplicity, it can also be defined as *the ability to handle men.* Combat leadership, then, is *the ability to handle men on the battlefield.*

Leadership is dependent upon certain characteristics which must be present, in varying degrees, in every officer who sincerely desires to qualify as a combat leader. There are undoubtedly hundreds of qualities that an officer must possess if he is to be a good leader. A careful study of these, however, leads to the conclusion that the meaning of many of them shades off into the meaning of others, and after an elimination of all borderline qualities, ten stand out as essential. Leadership is composed of *knowledge, judgment, tact, endurance, initiative, bearing, courage, dependability, justice, and enthusiasm.* (See figure 1.)

If an officer possesses all of these qualities in sufficient degree, he will be a self-confident, well-balanced individual. In addition to this self-confidence he will have the characteristics which inspire the confidence of others. Leadership is more than the mere exercise of authority; it is the sum of those qualities that inspire men to positive action in situations where the mere badge of authority will not suffice.

The importance of leadership, and of the individual qualities of which it is composed, can best be shown by actual combat experiences. The following are brief accounts and analyses of the combat experiences of small units in various theaters of the current war.

ESSENTIAL QUALITIES OF LEADERSHIP

1. KNOWLEDGE: (professional, cultural—general information)
   learning, information; intelligence, brains, mind; understanding, perception, comprehension, mastery.

2. JUDGMENT: (ability to make correct decisions)
   common sense, wisdom, prudence, foresight, sagacity.

3. TACT: (ability to handle human relations)
   cooperation, loyalty, team work, diplomacy; kindliness, sympathy, tolerance, understanding, sensitivity, thoughtfulness, adaptability, courtesy.

4. ENDURANCE: (physical and mental stamina)
   stamina, strength; vigor, tenacity, steadfastness, perseverance.

5. INITIATIVE: (ability to originate and carry through an action)
   aggressiveness, self-reliance, resourcefulness, independence, self-confidence; alertness, watchfulness, adaptability; effort.

6. BEARING: (as relates to dignity of appearance and demeanor)
   poise, self-control; simplicity, naturalness; neatness, smartness.

7. COURAGE: (a mental control of fear)
   nerve, grit, bravery, valor, heroism; daring, intrepidity; audacity, fearlessness, boldness; fortitude, resolution; truthfulness, honor; self-control, discipline.

8. DEPENDABILITY: (certainty of proper performance of duty)
   honesty, loyalty; constancy, reliability, faithfulness, responsibility; discipline, exactness, punctuality.

9. JUSTICE: (fairness in the administration of rewards and punishments)
   impartiality, fairness, objectivity, unbiased, equitable, dispassionate, unprejudiced, honesty.

10. ENTHUSIASM: (intense interest in the success of the cause)
    zeal, ardor, fervor; force, earnestness, interest; faith.

FIGURE 1.

GUADALCANAL

This is an account of one of the original units to land on Guadalcanal. After the beachhead had been established, certain units were ordered to advance parallel to the shore to destroy any enemy resistance which might be encountered. It was generally known that most of the ravines leading to the beach were held by the Japanese. These steep-banked ravines were from 150 to 200 feet deep, heavily wooded and filled by dense undergrowth.

Company X was given the mission to mop up any enemy who might be in Ravine A, to reorganize on the farther ridge, to continue the attack to Ravine B, and then consolidate a position on the ridge beyond. (See figure 2.) The 1st Platoon had advanced about 200 yards in Ravine A when it encountered strong resistance, including fire from mortars, machine guns, and snipers. The platoon leader and two of the squad leaders were killed with the first burst of fire. Panic immediately overcame the remainder of the platoon and the men retreated to the original line of departure. Here, they came upon the sergeant of a light machine-gun section, which had been emplaced to cover their advance. The sergeant, after questioning some of the men, realized that something must be done, and ignoring the presence of the remaining noncommissioned officers of the platoon, who had already indicated their inability to control the situation, he immediately reorganized the platoon and had them dig in. To divert their attention and to provide some additional duties to occupy their thoughts, he had a portion of the platoon take over the duties of his machine-gun section and assigned others to bring up ammunition. Soon, the company commander arrived and was advised of the situation.

Had you been commander of this company and found one of your platoons in this condition, what would you have done? Before reading further, seriously ask yourself this question. It is a situation which might have confronted any commander. The fact that it happened 9,000 miles away makes it seem remote, but it was very real to that

company commander and might well be to you. What would you have done if you had been this leader on Guadalcanal? What will you do when you are on a Japanese-controlled island and your leadership is similarly tested? If leadership was ever needed, it was needed by this platoon.

The company commander realized that the combat effectiveness of the platoon had been temporarily destroyed and that effective action must be taken immediately to restore the men's self-respect. He called the men together, under protection of the machine-gun section, talked to them, and said that he would lead them through the attack. They again started on their mission and were successful in capturing or killing all of the enemy in their zone of action. Because the captain reawakened their fighting spirit and restored their combat efficiency, they were successful, and their losses were only two additional men wounded.

The evidences of both good and bad leadership are clearly seen in this account. The platoon leader, although courageous in leading his men against the enemy, had not trained his noncommissioned officers to assume new responsibilities in an emergency. When the test came, no one was ready to take command and lead the platoon to the completion of its assigned mission. This failure during training resulted in panic in combat.

On the other hand, there is the example of the natural, almost unconscious, leadership of the machine-gun sergeant, whose actions were so self-confident and spontaneous that they inspired the immediate obedience and confidence of the remaining members of the rifle platoon.

Finally, the actions of the company commander were indicative of the highest type of leadership, for in them we see judgment, tact, courage, and initiative. Had the company commander attempted to restore the fighting spirit of this platoon by the exercise of his authority—had he depended upon harsh words and loud orders—he would probably have permanently destroyed the morale of the platoon. Instead, his own example of personal courage and leadership re-established self-confidence in each member of

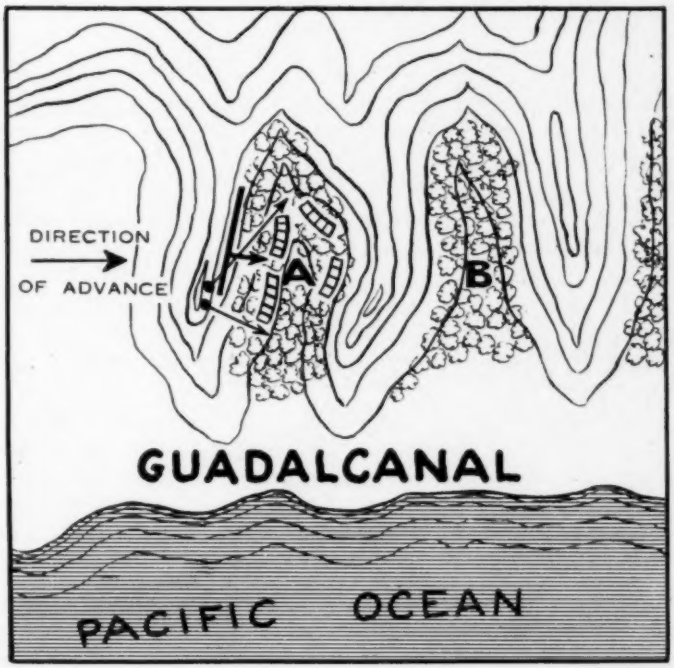


FIGURE 2.—Sketch showing area of advance of 1st Platoon.

the platoon and gave to each man an opportunity to remedy past mistakes without having those mistakes publicly and forcefully brought to his attention. Again, leadership by action, rather than by order, proved its merits.

El Guettar

The second account of battlefield leadership is taken from the battle of El Guettar, Tunisia. The battalion had moved out of El Guettar but had not, as yet, made contact with the enemy. The battalion commander ordered one of his front-line company commanders to send a platoon forward to make a general reconnaissance of the area through which the battalion was to advance (see figure 3). The platoon leader, with his platoon, left early the following morning on his mission, returning about 1730 the same day to report that a thorough reconnaissance had been made of the area and that no enemy, or evidences of enemy occupation, had been found.

The battalion commander then ordered a second front-line company commander to send a platoon the following morning to occupy the area and hold it until the battalion should advance.

Again, let us stop to determine what you would do as leader of this platoon. You have received orders to occupy an area which is reported to be free of the enemy. How would you carry out this mission?

The platoon leader started out, as ordered, in the morning, dividing his platoon into two sections of about equal strength. He led with the first section, and the platoon sergeant, in command of the second section, was to follow at a distance of about 200 yards. Unwilling to risk the lives of his men on intelligence reports that were 24 hours old, the platoon leader sent his scouts out well in advance of the first section. On approaching each saddle (see sketch, points D and A), the section was halted while the scouts, joined by the platoon leader, thoroughly reconnoitered the area. After making sure that the area contained no enemy, the scouts moved on toward the next prominent

terrain feature and the remainder of the section continued the advance. This leader's care in reconnoitering prior to his advance not only saved his own life but those of many of his men.

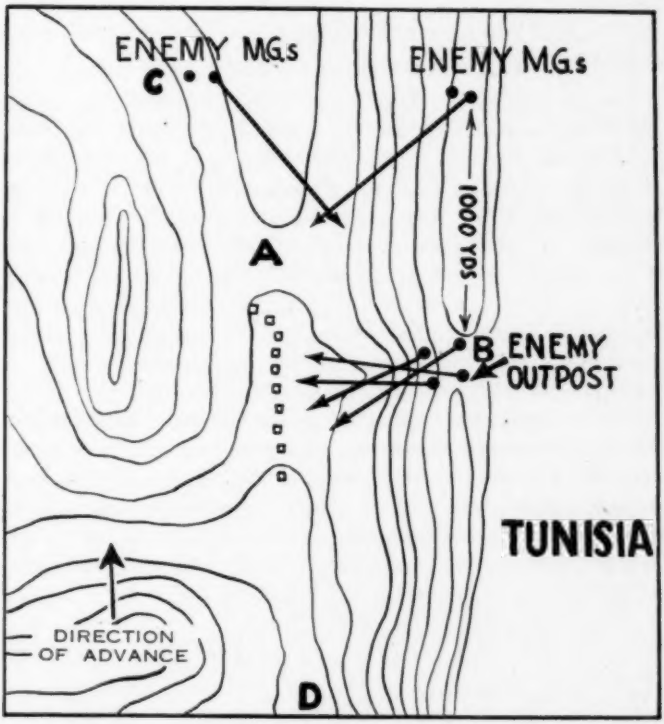


FIGURE 3.—Sketch of area of platoon's action, approximately 3000 yards in advance of the battalion.

While the platoon leader and his scouts were reconnoitering the saddle indicated by A on the map (figure C), they heard a voice. The platoon leader looked around to determine if any of his men had spoken; they had not. Upon looking further, the platoon leader saw a German soldier carrying a water can. The platoon leader motioned the

German to join him, and as the German advanced he was joined by another, both continuing toward the American officer. When they were about 25 feet away, they suddenly realized that they were advancing on an enemy officer, and one of the Germans turned and ran. He was immediately shot by the platoon leader, and the other German was captured.

The platoon leader now moved five of his riflemen up on a line with his scouts, the rest of the section remaining under cover in the rear. As these men moved forward they were fired upon by machine guns located in a draw to the right (point B in figure 3). Fortunately, the guns were so sited that, although they could fire in the general area of the major element of the section, they could not fire on point A. With his platoon divided by enemy fire, the platoon leader made a quick estimate of the situation and determined to lead his seven men up the hill on the right of the machine guns at point B, approach the guns from the rear and knock them out. When he reached the top of the hill, another enemy machine gun, located at point C, opened fire; one of the men was wounded slightly but not enough to incapacitate him. The platoon leader continued toward his objective, came in behind the enemy emplacement, destroyed the machine guns and captured seven Germans.

The platoon leader now assembled his section in a ditch away from the line of fire of the machine guns at point C, pulled back about 300 yards to the saddle (point D) where he had left the remainder of the platoon and contacted the battalion commander by radio. The battalion commander, upon hearing the report of the actions of the platoon, ordered the platoon leader to bring his men and prisoners back to the battalion area. When questioned in the battalion area, the prisoners asserted that they had been in those positions for ten days; yet their presence had not been reported by the platoon leader who had made a reconnaissance on the day before.

Here, again, the evidences of good and bad leadership may be clearly seen. The leader of the original platoon which was sent to reconnoiter the area clearly indicated his lack of dependability, lack of courage, and an appalling lack of teamwork and cooperation with the other members of his organization. Upon subsequent questioning, he admitted that he had led his platoon to a point about 1,000 yards in front of the battalion position and had remained in observation there during the remainder of the day. He had made no attempt to reconnoiter carefully the area assigned to him and had failed to discover the enemy who were carefully intrenched in the area. His lack of dependability in failing to carry out his mission had exposed the entire battalion to possible ambush by the enemy. Only the care exercised by the leader of the second platoon prevented what might have been a serious disaster for the entire battalion.

The conduct of the leader of the second platoon, the one which had been sent to occupy the area pending the arrival of the battalion, is as excellent an example of good leadership as the negligence of the leader of the original platoon is of poor leadership. The leader of the second platoon indicated his complete understanding of the importance of his mission of protecting the other members of his battalion —his team. His actions, in dividing his men, in carefully reconnoitering each area before advancing, in capturing the enemy machine-gun nest, and in reporting promptly the changed situation to his battalion commander, proved his knowledge, judgement, initiative, dependability, and courage. He was a leader, for he not only had confidence in himself, but his actions were such as to inspire the confidence of his men and of his superior officers.

These are two examples to show how others have solved battlefield problems during the stress of actual combat. Such studies will aid in indicating theoretically correct procedure under certain battle conditions, but a knowledge of correct procedure is not, in itself, sufficient to guarantee the proper individual reaction under similar stress. Such

individual reactions can be determined only in combat, but it is possible to establish habits of thought and action which will aid immeasurably in making these combat reactions habitual.

Every officer who desires to be a competent leader must not only work to develop those characteristics essential to leadership, but must solve, prior to battle, many problems which he may meet in battle. He must place himself mentally on the battlefield, see and feel the action, and repeatedly solve each problem until the solution becomes second nature with him. In every battle situation, in every combat problem that he reads or hears, he must place himself, mentally, in a similar situation, and solve the problem. Every situation, every problem, should be his, and he should attempt a solution to each.

An Imaginary Situation

To impress Infantry School students with the necessity of effective leadership, and to help them develop an understanding of the essential qualities of leadership, students are required to prepare hypothetical battle situations emphasizing the need for specific qualities of leadership in junior officers. Such self-created incidents also reveal the thinking of the student and permit the instructor to correct erroneous impressions concerning leadership and battle situations. The following battle problem is one such imaginary situation which was submitted by a student:

Company A was temporarily halted by heavy enemy fire from Ridge 5 (see figure 4). The company commander decided to commit his support (3d) platoon by sending it up the wooded draw on his left flank to attack the enemy on Ridge 5 from their right flank.

In giving his order, Captain Company A informed Lieutenant 3d Platoon that artillery fire would be placed on Ridge 5, and that it would lift on an amber star cluster signal, given by the platoon leader from the western slope of Ridge 5 just prior to the assault.

The platoon leader moved his platoon up the wooded draw into position for the assault, coming under enemy fire from Hill 501. Upon ordering his platoon guide to fire the amber star cluster signal, the platoon leader discovered that the platoon guide had lost his pyrotechnic signals when working his way up the draw. The SCR 536 was dead.

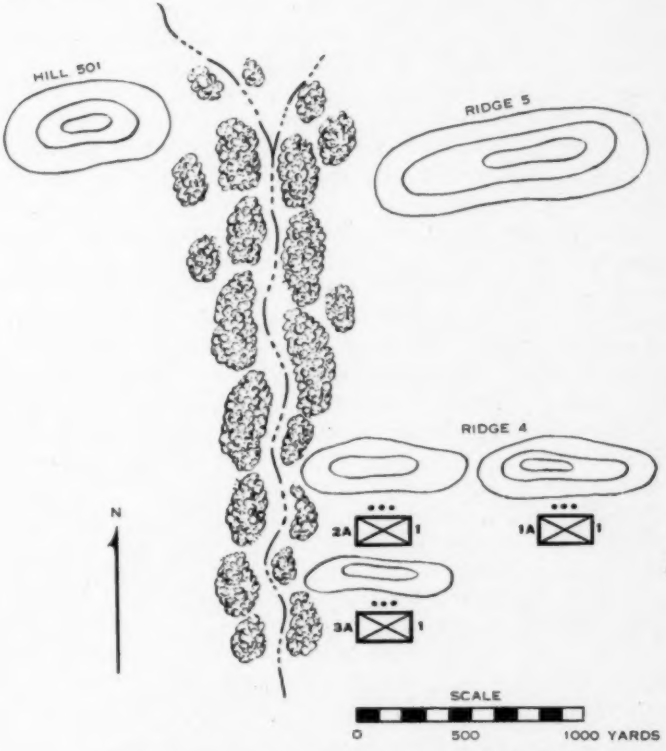


FIGURE 4.—Sketch of Company A's zone of action.

Here is a typical battle emergency. Mechanical means of communication fail; enemy fire from an unexpected position is encountered. What would you do? The mission is essential and yet it cannot be carried out in the face of enemy

fire from Hill 501 and the inability to lift the friendly artillery fire. It is a challenge to your leadership.

As the responsible leader of this platoon, what would you do? How would you fulfill your responsibilities in carrying out the part of the plan of battle which has been entrusted to you by your superior?

Here, your knowledge, your initiative, your judgment, and your dependability—in short, your leadership—is in question. You must decide, and decide quickly, how to accomplish your mission at the smallest possible cost to your platoon. Indecision may mean the defeat of the entire battalion; ignorance may mean the loss of your platoon, but knowledge and judgment on your part, plus confidence and enthusiasm among your men, will easily find a solution. What would you do?

One solution, that offered by the student, would be to send two messengers to the company observation post, requesting that the artillery fire be shifted from Ridge 5 to Hill 501. In the meantime the platoon, taking advantage of all available cover, would work as far as possible up the slope of Ridge 5 to be in position for the final assault as soon as fire is lifted.

From the point of view of this article, it is not the tactics involved that are important, but rather the leadership characteristics displayed. If the leader should make a bad tactical decision, his enthusiasm and the belief in his plan might well overcome this error. Could you, under difficult circumstances, adopt and carry through a plan which would insure success, or would hesitancy, indecision, fear, and lack of judgment rob you of the power to lead?

An Actual Incident

Let us turn from the hypothetical situation just given to an actual battle incident. Lieutenant 1st Platoon had been given command of a patrol of 18 men, and the mission of feeling out and breaking up the enemy strength within a given sector. After advancing some distance into the jungle, he encountered a much larger force of Japanese holding a

small village. This force was in position to delay a contemplated attack by U. S. troops.

What would you have done? Your mission, at least had been partially completed. The enemy had been located. But had their strength been accurately determined? Had they been felt out and broken up? But what more could be expected of a small patrol faced by a numerically superior enemy in a strongly emplaced position. What would you have done?

The plan of the patrol leader was simple and effective. He deployed his men so that they surrounded the village and were in position to place accurate fire upon the enemy from points of commanding terrain. While the majority of the men were maintaining a steady rate of fire, the lieutenant and another group made the assault. The men had been instructed to make a lot of noise, and to change positions frequently. As the men were well dispersed and covered the village from many angles, the impression was given that the attacking force was a large one. The psychological effect was excellent and the action convinced the enemy that their condition was a hopeless one. After strong but brief resistance the Japs fled to the woods and left the village to the much smaller American patrol.

The patrol leader had indicated, decisively, his right to the designation—leader. He had demonstrated his dependability by effectively carrying out his mission even in the face of overwhelming odds. He had used his initiative and intelligence to outwit the enemy and to preserve and protect his own force. He had demonstrated those qualities which inspired the trust, admiration, and confidence of his men. He was successful as a leader.

Leadership By Men In Ranks

The foregoing examples relate primarily to leadership in combat situations. But leadership involves more than courageous, determined, and intelligent action in combat. It also involves the training of all members of your unit so that

they, in turn, evidence the same qualities as their leader. The success of such training can be seen in the following incident:

A private had been sent with other soldiers on a reconnaissance patrol. The patrol had accomplished its mission, but had been ambushed while returning. All of the patrol except the one private were killed. In working his way back to his own lines, the private discovered that the Japanese had already started their attack on the right flank of his battalion.

The private managed to slip through the enemy lines and upon reaching his own, he came upon a heavy machine gun which was not firing. The squad leader had been killed and the remaining members of the squad did not seem to know what to do.

What would one of the men you have trained do under such circumstances? His patrol killed, an unexpected enemy attack underway, a report due and badly needed by his company commander, and a gap in our lines due to the inactivity of a badly shocked machine-gun crew. What would you have done?

The private took control of the machine-gun crew and soon had the gun firing, thus closing the gap in his own lines. He then wrote a report of the actions of the patrol and his own subsequent actions and sent three men with this message to his company commander, with orders to return immediately with ammunition and food for the gun crew.

The Japanese attacked the machine-gun position several times and each time were repulsed with heavy losses. They then crawled close to the position and threw hand grenades into the emplacement. The private picked up the first grenade and threw it back, and then the second. Each time he would lean out of the emplacement so that in case a grenade did explode before he could throw it, only one person would be killed and not the entire crew. The third grenade exploded just after he had leaned out to throw it. No one was killed, but the private lost an arm. The Japanese attack had failed.

Here, again, the essential qualities of leadership are decidedly in evidence. The dependability of this man in completing his patrol's mission and getting the information back to his company commander, his initiative in taking control of the machine-gun crew and plugging the gap in the lines, his courage and his thoughtfulness of others in his handling of the grenades—all are definite proofs of the leadership that was truly his.

The leadership and lack of leadership illustrated in the foregoing accounts define, in general terms, the leadership goal for which we strive. However, to appreciate the leadership of others, and to profit, personally, from their experiences, the reader must be able to recognize those qualities which produce leadership. He must learn to analyze others in order to determine what qualities of leadership are present in each, and to what extent.

For this purpose a rating sheet has been devised to assist in judging leadership characteristics (see figure 5). Using this rating sheet as a basis for study, practice rating well-known military leaders to determine the characteristics upon which their leadership is based. The following sketch of one American leader may be used as the first study:

A Military Leader

During his early years in the army, he was not particularly successful, although he possessed demonstrated knowledge and ability. He believed that he was slated for greater things, a belief that sometimes made him impatient with some of the detailed slow-moving work that was required of him as a junior officer. However, later in his career he paid strict attention to detail. If he believed in a cause, he would follow it with enthusiasm, with all the effort of which he was capable.

He was a stern disciplinarian, and insisted on strict compliance with his orders. None of his men ever complained that he had committed an injustice. He was respected, but not universally popular. He had a reputation for being

LEADERSHIP

Rating Sheet

ESSENTIAL QUALITIES OF MILITARY LEADERSHIP

INDICATE IN THIS MANNER (X) OPPOSITE THE CLASSIFICATION WHICH MOST NEARLY DESCRIBES THE PERSON BEING RATED, UNDER EACH OF THE TEN QUALITIES.
(SYMBOLS: SUP-SUPERIOR EX-EXCELLENT VS-VERY SATISFACTORY
S-SATISFACTORY U-UNSATISFACTORY)

1. *KNOWLEDGE*—(professional, cultural—general information)
   - [ ] (SUP) Possesses unusual learning and comprehension
   - [ ] (EX) Possesses excellent learning and comprehension
   - [ ] (VS) Possesses above-average learning and comprehension
   - [ ] (S) Fairly well informed
   - [ ] (U) Lacking in information; inclined to bluff.
2. *JUDGMENT*—(ability to make correct decisions)
   - [ ] (SUP) Exceptional ability to think clearly and to make wise decisions quickly and consistently
   - [ ] (EX) Very calm and fair; makes correct decisions
   - [ ] (VS) Calm and fair; usually makes sound decisions
   - [ ] (S) Average amount of common sense; makes poor decisions occasionally
   - [ ] (U) Makes faulty decisions; prejudiced; hasty.
3. *TACT*—(ability to handle human relations)
   - [ ] (SUP) Unusually adaptable and courteous; talented in handling relations with others
   - [ ] (EX) Very adaptable and courteous; skillfully handles delicate situations
   - [ ] (VS) Adaptable, courteous, and successful in dealing with others
   - [ ] (S) Reasonably tactful; fair insight into the motives of others
   - [ ] (U) Irritates; opinionated; creates friction consciously or unconsciously.
4. *ENDURANCE*—(physical and mental stamina)
   - [ ] (SUP) Can stand exceptional amount of physical and mental strain
   - [ ] (EX) Can stand above-average amount of physical and mental strain
   - [ ] (VS) Can perform his duties well under trying conditions
   - [ ] (S) Can stand normal amount of physical and mental strain
   - [ ] (U) Tires or breaks down easily.
5. *INITIATIVE*—(ability to originate and carry through an action)
   - [ ] (SUP) Exceptional ability to think, plan, and act immediately on own responsibility
   - [ ] (EX) Readily plans and executes missions on his own responsibility
   - [ ] (VS) Resourceful; executes missions on own responsibility
   - [ ] (S) Capable of doing more than just normal and routine duties on own responsibility
   - [ ] (U) Requires guidance in his work; evades responsibility.

6. *BEARING*—(as relates to dignity of appearance and demeanor)
   - [ ] (SUP) Outstanding dignity (with animation) in appearance and demeanor
   - [ ] (EX) Dignified in appearance and demeanor
   - [ ] (VS) Careful of personal appearance; orderly demeanor
   - [ ] (S) Generally neat and of good appearance; demeanor satisfactory
   - [ ] (U) Careless of personal appearance; enjoys making spectacle of self.
7. *COURAGE*—(mental control of fear)
   - [ ] (SUP) Unusual ability to meet danger and opposition and to accept responsibility with great calmness and firmness
   - [ ] (EX) Excellent control of fear; unhesitatingly meets danger and opposition and accepts responsibility
   - [ ] (VS) Good control of fear; meets danger and opposition, and accepts responsibility
   - [ ] (S) Average control of fear; can meet danger and opposition, and accepts responsibility
   - [ ] (U) Poor control of fear; evades danger and opposition, and responsibility.
8. *DEPENDABILITY*—(certainty of proper performance of duty)
   - [ ] (SUP) Never fails to discharge all duties in a superior way
   - [ ] (EX) Thoroughly reliable; always discharges duties in an acceptable manner
   - [ ] (VS) Reliable; usually discharges duties in an acceptable manner
   - [ ] (S) Reliable; discharges duties in a routine manner
   - [ ] (U) Unreliable; lacking in a sense of duty.
9. *JUSTICE*—(fairness in the administration of rewards and punishments)
   - [ ] (SUP) Always renders just rewards and punishments even at the risk of great personal sacrifice
   - [ ] (EX) Keen sense of justice; firm and consistent
   - [ ] (VS) Just, firm; usually consistent; sincere
   - [ ] (S) Just, but somewhat inclined to confuse justice with kindliness or harshness
   - [ ] (U) Partial in decisions; sometimes unfair.
10. *ENTHUSIASM*—(intense interest and faith in the success of the cause)
   - [ ] (SUP) Exceptional urge and capacity for work; unusual ability to inspire others to work for success of the cause
   - [ ] (EX) Very energetic; excellent ability to inspire others
   - [ ] (VS) Energetic; good ability to inspire others
   - [ ] (S) Industrious; average ability to inspire others
   - [ ] (U) Frequently lazy; no inspiration to others; inactive.

FIGURE 5.

rough and tough, decisive in speech and action. For that reason, he was considered to be somewhat of a trouble-shooter.

He was once assigned to command a unit that was just about one step away from mutiny. He ordered several of the ringleaders of the revolt into arrest. One of them defied the officers and resisted arrest. The commander manhandled the fellow personally, kicked him into the road, and ordered that he be shot if he ever returned to the camp.

During a campaign, his commander found the ammunition running low, and called for volunteers to secure replenishment. This officer volunteered for the task and carried the message through hostile fire, hanging on his horse's side with one heel at the cantle of the saddle and one hand on the horse's mane. While riding in this position in the face of enemy fire, he forced his horse to leap a four-foot wall.

He had many of the characteristics of a bulldog. Although he had the ability to act quickly, he was also stubborn. Once he made up his mind to follow a certain course, he would follow it to the end. If necessary he was as willing to outwait the enemy as to outfight him.

In his personal habits, he was extremely simple. He had a naturally powerful physique, although he was small in stature. He did little, by our standards, to keep himself in condition, but he was confident of his capacities, and could endure any hardship which he called upon his men to undergo. He was not what would be called a garrison soldier. While he insisted upon cleanliness in person and in linen, his uniform and general appearance were not always neat.

While his military knowledge was considerable, he made many serious tactical blunders. However, he profited by his mistakes, even though the lesson was sometimes slowly learned. He felt himself quite competent, in his younger years, to perform tasks far more important than those assigned to him. He was never afraid to take on a new job. He was quite outspoken at times. When he felt strongly about something, and when he believed himself to be right,

he never hesitated to press his point home. However, as a general rule, he appeared to be shy and unambitious. He was repeatedly passed over by promotion of others who possessed finer speech and more impressive appearance, but he finally won a small command, and later command of an army.

The question of who this man was is immaterial. The above information, however, will serve as a basis for evaluating his leadership on the form outlined in figure 5, Analyze this man in the terms indicated in figure 5 and determine wherein lay his right to be called a leader. (For this man's identity, see note at end of chapter.)

SELF-ANALYSIS

Such analyses from known facts concerning men generally accepted as leaders will provide a basis for self-analysis along similar lines. The study of leadership in others is valueless unless reflected in the conduct and activities of the individual concerned. Having rated others, each reader should then rate himself. The purpose of such self-analysis is to recognize whatever weaknesses may exist in the individual. "Know thyself," the maxim which the ancient Greeks inscribed on the Temple of Apollo at Delphi more than 26 centuries ago, is as applicable today as it was then; for only in knowing one's self, one's own weaknesses and limitations, as well as one's strength, is it possible to know others and to lead them effectively.

Having analyzed himself, the reader should make every effort to correct those weaknesses which he may have found. Goals should be set and rigorously adhered to in order that correct habits may be developed and obstacles overcome. Every effort should be made to establish consistency of thought and action in the attempt to develop the qualities of leadership.

Through the leadership which he attains in himself, the officer will be able to mold his men into a fighting team. In order to have such a team, discipline and high morale must prevail. Discipline and morale are states of mind and

are not established through any kind of magic art. They are established through development and growth—through hard work, recognized accomplishments, and through having correct mental *attitudes* toward fundamental principles, as a result of deep-centered convictions. Some of the *attitudes* which contribute to good discipline and morale are:

Faith in American institutions; *determination to defend these institutions, with my life if necessary*; *pride in my outfit; pride in myself; confidence in the fighting ability of my outfit and myself*; *satisfaction with my job assignment by feeling I am contributing my utmost to winning the war*; *a will to fight to the finish when I am engaged in battle*; *and faith in the ultimate victory of my country.*

For an officer to weld his unit into a fighting team, not only must he hold these *attitudes* as a part of his very life and being, but he must inculcate them into the thinking and lives of his men. Then his men will train hard and accomplish tasks of which they will be proud. His command will be well-disciplined and will possess a high state of morale. He will have a hard-hitting, hard-fighting team that will acquit itself with honor when the time comes to meet the enemy on the field of battle.

If you are a young, inexperienced second lieutenant who has just received your commission as an officer, you may find three questions continually recurring in your mind.

"How will I be received by my first command?"

"How well will I be able to train my unit for combat?"

"How will I acquit myself in the face of the enemy?"

To the first of these questions, you are wondering what the old soldier, the old "noncom," will think of this new officer. You are wondering if you will be timid, if you lack the self-assurance that is so necessary in commanding men. Your fears are needless. You have been painstakingly selected and carefully trained for the position you now hold.

A comparison of your present situation with that of a certain officer in 1917 is illuminating. In 1917, when this young man went to officers' training camp, he knew nothing of military life. He had had no basic training and even

arrived in camp in civilian clothes which he wore for the first several days of his training. The training in 1917 was miserable compared to the training which you have received. Yet, after a military career of 90 days, this young man received his commission. At the time he had never drilled a company—not even a platoon.

Upon receiving his commission, he also received his overseas orders which attached him to the British Army in France. Upon arrival in France, he was sent to a British officers' school, where he remained for two or three weeks, and was then sent to the front. When he arrived at his company dugout about four o'clock in the afternoon, he was informed by the commanding officer that the company was short of officers and that this lieutenant was to take command of a platoon sector in the outpost line. He went up to the line, took command, and led a patrol out into no-man's land on his first night of duty with troops.

There he was, a raw American second lieutenant, poorly trained, without experience, with his first command a platoon of old, seasoned British soldiers. The junior officer, today, will probably never have a similar experience, but regardless of his assignment, he will be much better qualified to command his unit than was this American officer of the First World War. You may join your unit confident in the knowledge that you are well trained and capable of leading your men.

The second question in your mind might be, "How well will I be able to train my team for combat?" The most important job that an officer has is that of training his men and leading them into action. Just how well this will be accomplished will depend upon the abilities and leadership of the individual officer. The character and efficiency of his outfit will depend upon his own character and effort. If he will teach his men what he has learned; if he will continue to study and stay abreast of new developments and will impart this information to his men; if he will toughen himself physically and make his men toughen themselves physically so that they can endure the rigors and hardships of battle; if he will understand the cause

for which he fights and make his men understand that cause; if he will have the moral courage to stand for what is right and enforce his decisions; and, above all, if he will have in his heart the will to fight, a desire to destroy the enemy, and can inspire his men with this will to fight—then he will have a trained team that will follow him anywhere.

The third question which you might ask yourself is, "How will I acquit myself in the face of the enemy? What will be my action and reaction on the field of battle?" No one can say, but the experience of that American second lieutenant in the First World War, already referred to, might be helpful. It was in the Battle of Cantigny, the first offensive action of the Americans in that war. The eyes of the world were on these untried American soldiers to see what kind of fighting men they would be. The men themselves were wondering the same thing.

The lieutenant was in command of a platoon in the first wave of the attack which was launched at dawn. The platoon was a serious group of men as they went forward in the early morning hours to take their positions in the jumping-off trench. There was no levity, no talking, and the tenseness seemed to grow as H-hour approached. Finally H-hour arrived and the American barrage came down and began to move forward. Every man in the platoon came out of those trenches without hesitation, carrying his rifle at high port. Still there was no levity, no talking, only a vast human silence filled with the mechanical din of battle. The men moved forward mechanically, almost automatically, tense and expectant. It seemed to these men who had never known battle that anything might happen.

The barrage rolled on across no-man's land, across the German trenches, and finally lifted. As it lifted some Germans jumped out of their trenches and started running to the rear. A country boy from Alabama, a rabbit hunter in his native state, saw the fleeing Germans, and let out a terrific rabbit-hunting yell. That yell was invaluable, for it broke the tenseness, overcame the dread feeling of expectancy, and substituted action for thought. Men on all sides

joined in the yelling, settled down, drew beads, and fired aimed shots. Everyone of the running Germans was hit. Those still in the trenches began to scream "Kamerad," and from then until the objective was gained, the going was easy. It was exciting, like a glorified rabbit hunt, but with different and bigger game. They were meeting and overcoming the enemy. They were victorious. They were experiencing the greatest sensation, perhaps, that can come to a soldier—that of meeting the enemy of his country face to face on the battlefield and having that enemy beg to be taken prisoner.

The final objective was taken but holding that objective was difficult. The Germans realized that an American success at that time would boost the morale of all the Allies. A desperate effort was made to dislodge them. Counterattack after counterattack was hurled at the Americans, but they remained firm. This continued for several days until finally the Germans withdrew and the battle ended. The Americans had taken, and held, every foot of their objective.

The American officer need not worry about his actions, or the actions of his men, on the field of battle. When the situation arises, he will find it easily handled if he has trained his men properly and prepared them, mentally, for combat. The American soldier, properly trained and intelligently led, has no superior in combat.

> *If, as a result of your training, you enter combat physically fit, with a fighting heart and a thorough knowledge of your weapons, your training has been profitable.*

The officer who has received his commission in the Army of the United States must always remember that he has had conferred upon him one of the greatest honors that can come to any man. He has inherited a proud history and an honorable tradition. He is an officer in an army that was first assembled to achieve independence and to establish certain fundamental rights in the lives of men. Since that first muster, our American Army has existed

for the defense of those human rights—the defense of freedom. With the rights of mankind now challenged throughout the world by the evil forces of oppression and brutality, the American again finds the opportunity to devote himself to the service of his country and of mankind. May his action be such as to bring additional luster to the brilliant record of American arms.

AN OUTLINE OF A COURSE ON LEADERSHIP BASED ON THE ABOVE ARTICLE

The purpose of this course is to give to *the small-unit commander*—the noncommissioned or junior officer—*mental preparation to lead men in combat.* The course should be given only to junior officers and noncommissioned officers. Problems of leadership of large commands are not emphasized. When the junior leader becomes a colonel or a general he can take care of his own leadership. The instruction in this course is designed to prepare the mind of the *noncommissioned officer, lieutenant,* or *captain* for combat.

In order to prepare his mind, the student is brought to realize that a leader must be a well-rounded, self-confident, individual. To be well-rounded, and have self-confidence, he must possess certain human qualities which can be recognized in acts of leadership. These qualities, in turn, aid in creating certain attitudes of mind which are essential in combat. Because he is being trained as a COMBAT leader, the student's thoughts are directed toward acts of battle leadership. This is accomplished by presenting to the class, case histories which are taken from actual happenings on the battlefield, and drawing to the attention of the student the different human qualities involved in each case. The student is encouraged to think ahead—to imagine all kinds of situations which he might encounter in combat, and to think and plan just how he would solve each situation. He is brought to realize the necessity of teaching LEADERSHIP to his subordinate leaders, and of equipping the minds of all of his men for the shock of battle. It is impressed on the mind of the student that he must teach,

train, and require of his men the same precision in ALL of their work and problems—in every training situation—as he expects of them when they are first tested in battle. It is stressed that the average soldier is going to act in battle just as he has been taught during his training period.

Five objectives are set forth to be achieved during the course of instruction. They are:

First: To impress on the mind of the student that soon it may be his privilege and responsibility to lead men in battle.

Second: To acquaint the student with actual battle conditions and situations.

Third: To instill in the student the habit of thinking ahead and solving leadership problems which he may encounter in combat.

Fourth: To impress the student with the necessity of developing a fighting team.

Fifth: To teach the student to grade and rate leadership in himself and in others when training troops or leading them in battle.

Sixth: To equip the student with a system, or tools, for the teaching of leadership.

The course is covered in six hours, and this time is divided into four periods of instruction. The informal conference method of instruction is employed at all times when the nature of the work permits. The student is encouraged to ask questions at any time during any conference, on problems concerning leadership or involving conditions or situations of combat. The instructor presents many situations to the class and calls on individual students for their solutions. The work in the four periods is divided as follows:

First Period: The first period is of two hours duration, at which time the instructor gives an introductory address followed by an analytical discussion of the fundamental qualities of military leadership as they apply to the individual in developing a fighting team and leading it in combat. (See Chapter 7, Vol. XXVI, The Mailing List.)

Second Period: The time of the second period is one hour. Case histories of leadership problems, taken from actual battle occurrences, are presented by the instructor and discussed by the class.

Third Period: In the third period of two hours, the class is given practical instruction in grading military leadership. Each student, prior to class, prepares to deliver an oral presentation of a short case history involving good or bad leadership which he has experienced or which has come under his observation. Following each of these presentations, the class and the instructor discuss the leadership illustrated by the narrative. Case histories involving leadership problems selected from recent happenings on our battlefronts are presented and discussed.

Fourth Period: The fourth period is for one hour. The time is divided between a general review reemphasizing the cardinal principles of leadership training, and a closing address by the instructor.

NOTE.—The leader described on pages 19, 22, and 23 above was General Ulysses S. Grant.

CHAPTER 2

Smashing The Tank

I

In war, every new weapon is a mystery weapon, which on its first appearance sweeps all before it. Then follows a scramble to develop means and tactics to combat the newcomer. Next—perhaps for years, perhaps for but a very short time—the balance see-saws while successive improvements to the new weapon and the new counter-weapon strive to cancel each other out. Finally, the new weapon either proves its worth and becomes a standard item of armament, or else it turns out to be too costly in effort and material when measured against the casualties it inflicts, and so retires to the museum of military curiosities.

There is no doubt that the tank is one of the most important developments of the present war. Yet from the long-range point of view, these mobile fortresses are still in the stage of test and improvement. Certainly they have thus far fallen short of the predictions of extremists who prophesied that the tank would render obsolete the traditional battle in which the decision resulted from the comparatively slow but conclusive advance of foot troops. Nevertheless, tanks have modified our organization to an important extent, causing the introduction of new weapons, new training, and new forms of coordination in our infantry units. The regiment is a far more complex organization than it was in the last war, and no small part of that increased complexity may be traced to the reaction of the infantry to the tank.

The ideal form of the machine itself, and the tactics of its employment, remain a matter of discussion, change, and dispute. The desire for heavier armor and greater fire power has led both the German and Russian armies to experiment

with bigger and bigger tanks. There is some limit, perhaps not yet determined, at which the tank will meet the same fate as the dinosaur—find itself too big to survive. It is good strategy to pack as big a punch as possible; poor strategy to put too many eggs in one basket. Up to now our own tank development has kept clear of the trend to mammoth super-tanks. But the final answer, the specifications for the ideal size for tanks, is yet to come from the battlefields.

Even more varied are the tactical theories. The Nazis pioneered the use of mass, the concentration of the greatest possible armored strength in a deep and decisive penetration. This is the orthodox doctrine today. Yet the Russians, who have had more experience in both tanks and antitank fighting than all the other United Nations combined, are using tanks in close support. They increasingly favor the use of tanks to accompany foot troops, the latter frequently riding on the outside of the tank. The theory of this use is that a penetration by tanks alone is temporary in character and becomes a permanent gain only when the ground is occupied and consolidated by foot troops. Therefore, the consolidating infantry may as well have the benefit of close support by the penetrating tanks. This of course leads directly or indirectly to opening the way for rapid and deep penetration into enemy rear installations by large masses of tanks. But here again the final answer has yet to be written.

II

One thing certain is that a tank's function is to attack. It follows inevitably that antitank action is essentially defensive. To keep this basic fact clearly in mind is to hold the key to all antitank tactics. The regiment may be attacking, may be moving forward rapidly, but the mission of its antitank means is still to protect and defend against hostile mechanized attack. The officer concerned with these means must first ask himself, "Where and what must I defend?"

If the situation itself is defensive, the answer will be "the battle position of the unit," and the job will in many ways be simpler, for he will be coordinating his weapons with other defensive installations. But in the attack, this antimechanized defense will be charged with the protection of an ever-fluid advance. Though the enemy is defending and retreating, his tanks will be used in attacks—attacks to divert and confuse the attackers, to cover the retreat, to counterattack and regain essential terrain features, to gain time to strengthen defensive positions. Thus the antitank protection may be required to adjust to constantly changing terrain and to constantly shifting formations of attack. Avenues of mechanized approach may be ill defined. Vulnerable flanks, salients, and gaps may come into existence with little or no warning. Yet the obligation upon the antitank officer, and upon any officer whose command embraces any antitank means whatsoever, is to have those means always disposed where they can most effectively meet any mechanized counterattack or covering maneuver which the enemy may launch.

A possible exception to this rule of the defensive character of antitank action will arise only when hostile tanks are located where they threaten our forces, but the enemy persistently refuses to exploit his mechanized strength. Perhaps the situation is ripe for a general advance and only the hovering enemy tanks are holding up the action. This situation can be met by the aggressive use of tank-hunting parties. If the enemy tanks refuse to come after our forces, we can locate them by reconnaissance; then, take advantage of darkness or poor visibility and stalk them with rocket launchers, string mines, antitank grenades, sticky bombs, and Molotov cocktails. The reason such actions will be rare is that none but a very foolish or very desperate enemy will leave his tanks where they will be within our reach when he is not actively employing them.

Tanks will always have the initiative and will rarely fail to exploit it. Their mobility and maneuverability makes

this axiomatic. For this reason, the proper study of antitank doctrine and tactics should start with the study of tank doctrine and tactics.

III

The key to success in attack is surprise, and surprise heads the list of principles governing tank tactics. Other characteristics—mobility, mass employment and shock action, armor and fire power—are all subordinate.

Tanks utilize speed of movement, covered approaches, and coordination of fires in seeking to strike at an unexpected time from an unexpected direction. Halted vehicles, from defiladed positions if possible, cover by fire the movement of advancing units. Tanks are used in the largest numbers available to take maximum advantage of the shock action of sheer mass in effecting deep penetrations. Major mechanized attacks are delivered in successive echelons and successive waves, and in such action there will usually be a number of waves in depth moving far in advance of following formations which are accompanied by foot elements.

Small formations of tanks are frequently employed with foot elements to attempt minor penetrations or disrupting raids. A retiring force may use tanks in small numbers, reinforced by armored infantry or motorized infantry, to fight delaying actions and aid in the attempt to break contact.

IV

If surprise is the tank commander's ace then we will need anti-surprise measures to trump that ace. Reconnaissance, observation, and the antiair-antitank warning system all help to counter the enemy's efforts to obtain surprise.

Reconnaissance is the most important of all the duties of antitank officers. In defense, reconnaissance is carried out before the position is organized and is continuous. The procedure applies to antitank units just as it applies to rifle, heavy weapons, and cannon companies. The vicissitudes of battle may present crises and sudden change, but

the antitank officer shares these trials in like degree and method with the leaders of all other types of infantry units. It is in the attack that his problem is unique. It is in the attack that superior reconnaissance becomes a continuing necessity and at the same time more difficult of attainment.

No matter how rapid the advance, this reconnaissance must keep well ahead of it. To have his guns in the right place at the right time is more important than all other factors involved in the antitank unit mission. This part of the job is so dominant that usually the antitank unit commander will spend much of his time and energy in reconnaissance, delegating to subordinates the details of ammunition supply, selection of firing positions, reorganization, and other functions of command to be executed in accordance with his general plan. He may go through an action seldom seeing the weapons that he commands, pressing forward to study the terrain ahead as it is opened up by the riflemen's advance, verifying his own previous map study step by step, observing each terrain feature that may influence the movements of hostile tanks, plotting the best disposition of his guns to meet such movements, and sending back orders for displacement as often as such movements are called for. In any event the antitank commander will regard the selection of position areas of his guns as the most important of his tasks, and make sure that reconnaissance for those areas is thorough and continuous as long as the advance continues.

The battalion antitank officer can never afford to lose sight of the requirement that he give *close* support to the units he is supporting. Similarly, the regimental antitank officer can never afford to forget that his guns must provide *depth* to that support. Difficult situations have arisen in this war from the failure of antitank guns to keep pace with the advance, and there have been instances when infantry commanders have required tanks to help them hold new-won ground by occupying hull-down or well concealed positions and be available against hostile mechanized

counterattack, a function for which tanks are basically unsuited, and a misuse of armament which would never have occurred if the antitank guns had kept up.

To observe for hostile tanks is a duty of every sentinel and observer. The warning system pools the vision of these myriad eyes for the advantage of each gun and each soldier. The combining of observation for two types of enemy action in our antiair-antimechanized warning system is an obvious gain in efficiency. Our present concern, however, is only with the tanks, and not the airplanes, of which the system provides observation and warning.

The regimental system is a cog in the far-flung machine operated by higher authorities. This net includes signal corps intelligence, mechanized cavalry reconnaissance, aerial reconnaissance, of divisions and higher units. Similarly, artillery observers and liaison officers will aid in dissemination of such information. In many cases, information originating within the regiment, from a chain of observation posts covering as much terrain as possible, may be disseminated in time to assist other regimental units materially in guarding against surprise attack.

The mission of the system is to detect and trace the movements of mechanized forces within or near the regimental area; to receive pertinent information from higher and adjacent units concerning movements of such forces outside the regimental area; and promptly to disseminate information obtained to the division, adjacent units, and all units operating within the regimental area.

Although special observation posts and reconnaissance missions will be employed by S-2's and G-2's in building up their warning nets, the strength of the system lies rather in a communications linkage of all groups and individuals who carry out observation duties. This communication will include warnings by sound in the lower units, use of command nets in intermediate echelons, and special nets reserved exclusively for warning purposes in large units.

Coming right down to the antitank gun squad, it appears that constant and alert observation of the assigned sector has two purposes. First, it gains precious fractions of seconds for placing the gun in its firing position, ready to open well-aimed fire at the proper time. Secondly, it provides information to be fed into the warning net for the benefit of other squads and other units.

If all these provisions succeed in depriving hostile tanks of the advantages of surprise and speed, the need still remains for tactical provisions to nullify the other peculiar advantages of mechanized units. Against the momentum and shock of mass attack we oppose defense in depth. The deeper the attack penetrates the more antitank defenses it encounters. These successive defenses whittle down the attacking tanks until they are wiped out or the remnants flee. To outfight the fire and maneuver of tanks, we coordinate our weapons to engage both moving and stationary tanks as effectively as possible.

V

We have new and improved weapons as well as tactical principles to aid us in carrying out our antitank doctrines. In aggregate we have tremendous antitank fire power.

Right in the attacking echelon or along the main line of resistance, wherever there are troops, there are antitank rifle grenade launchers in each rifle squad. The machine-gun units of the weapons platoon and the heavy weapons company are also equipped with grenade launchers. These weapons have more lethal power against armored vehicles than the weapons with which battalion antitank platoons were equipped on the day we entered the war. They have the power to knock out any medium tank. Their limitation is one of range—75 yards is given as the maximum effective range of the antitank rifle grenade. But this does not reduce their effectiveness in accomplishing the job for which they are intended—the close-in defense of foot troops. Foot troops are a primary target for tank fire. First priority targets for tank guns are antitank defenses, artillery, and command post and other rear installations. Next in order

come automatic weapons and personnel. Rather than by fire, tanks sometimes seek to knock out personnel by overrunning their positions and crushing their armament. Such tactics may be preceded or supplemented by machine-gun fire from the smaller armament mounted in the tank, but such fire from a tank which is in motion and which opposing small-arms fire has forced to button up will usually be very inaccurate. Therefore, the real danger to infantry troops from tanks will come when the tank closes in and overruns. During the last 75 yards of the tank's advance the grenades can do their work.

Of course a tank, like any other means of combat action, is vitally concerned with its self-preservation, and for that reason will seek to engage whatever threatens it. The best evidence of the effectiveness of our grenade and rocket launchers is the concentrated fire the Germans pour on them as soon as they are spotted. But the tank cannot spot them until too late. This is the place on the battlefield where the small tank unit requires its own close infantry support. From the extremely restricted viewpoint of the crew buttoned up inside a tank, any rifleman might be a grenadier. It will be difficult enough for the tank crew to spot riflemen at all. The grenadier will be distinguished as such only when an exploding grenade delivers the information in thoroughly final form.

This weapon is revolutionary in its effect upon combat between tanks and ground troops. Without it, rifle units were almost helpless before tanks, and wholly dependent upon the weapons, both more powerful and more conspicuous than their own, of antitank units. With the grenade launchers, rifle and machine-gun units can meet and overcome tanks without outside assistance, while from the standpoint of the tank, opposition of destructive force is an ever present danger that is virtually impossible to discover and eliminate. In addition to the grenade launchers in the hands of front-line troops, nearly all vehicle drivers in the regiment are equipped with them. In all, there is more than one rifle grenade launcher to every six men in the infantry regiment.

Rockets have considerably more power, a greater effective range, and wider use than rifle grenades. Their use is similar, however, in that they are supplementary weapons to be used by the units to whom they are assigned for their own close-in protection. In general, rocket launchers are distributed among groups which are normally a little more isolated than rifle and machine-gun units, in order that these groups will be as nearly self-sufficient as possible. The rocket launchers provided for the various companies in the infantry regiment are for the protection of crew-served weapons, and all types of rear installations. Such weapons and installations are preferred targets for tanks, so this employment of launchers not only provides protection where it is most needed but also places antitank power where there is the best chance for its use.

Our antitank doctrine includes rockets and rifle grenades as part of the organized antitank defense. The fact that these weapons are distributed to the smaller units has led some people to the false impression that these weapons are not sufficiently powerful for use by higher echelons. This false impression is the result of a fundamental misconception of the principles of military organization. One of the governing factors in preparing the Tables of Organization and Equipment is to give to the smallest possible unit the greatest possible self-sufficiency. Another governing factor is that of preserving the maximum flexibility in the possible employment of all supporting and specialized means. The extreme lightness and ease of handling of our rocket and grenade launchers permit their wide distribution throughout the regiment. With them it is possible to provide antitank self-sufficiency down to squads without overburdening such small units. The same extreme lightness contributes to flexibility, since launchers can be moved from one place to another as fast as a man can run or a vehicle travel. The weapons themselves are limited in effectiveness only by the short range at which they can be accurately fired. This, however, is no limitation of their use as powerful weapons for close-in antitank defense. In addition to their use as antitank weapons, the possible use

of rockets against other targets such as machine guns, artillery, vehicles, pill-boxes, and personnel further emphasizes their value.

Hence it is that while the launchers are distributed to provide small-unit organic protection, their value to the antitank plan of the larger unit—regiment or battalion—is specifically recognized.

The battalion antitank platoon leader and the regimental antitank company commander are both designated as unit antitank officers, and as such are members of the special staff of the battalion and regiment respectively. In their capacity as staff officers it is their duty to check and adjust the positions of the antitank rocket launchers. It is obvious that the battalion antitank platoon leader will not ordinarily be able, in addition to his other duties, to check the positions of all the rocket launchers within the battalion. Much less will the antitank company commander be able to check the launchers within the regiment.

What is important is that these officers, in planning the antimechanized defenses of the battalion, or of the regiment, may include just as many of the launchers in their over-all plan as they find the situation requires. In theory, with the approval of the higher commander, the antitank officer could remove the launchers assigned to a particular company from the area of that company. In practice, he would only do so if the mechanized threat was such that the security of all concerned would be best served by such measures. In essence, the maximum flexibility is preserved. The plan of antimechanized defense should serve all the units of the battalion or regiment, and the battalion or regiment as a whole.

VI

The plan of antimechanized defense is built around the 57-mm antitank guns, 3 in each battalion, 9 in the regimental company. The defense mission of the battalion guns is to stop enemy tanks in front of the main line of resistance or as far forward as possible, and in the attack to provide

antitank protection to the front-line rifle units. The mission of the regimental guns is to add depth to the defense, protect flanks and rear, and reinforce the defenses within the battalion. The antitank protection of the battalions is most easily considered in connection with the regimental plan, particularly because of the part which the antitank mine platoon plays in the general plan. In some cases, Engineer Corps personnel may be used to lay deliberate minefields in front of a defensive position, but in both attack and defense, the antitank mine platoon with assistance from rifle troops will normally lay hasty minefields. In many instances, no engineer personnel will be available, and all mines will be laid by infantry troops in conformity with a plan based on the situation in the regimental zone as a whole.

When time permits, in the defense, mines will be used to connect and extend barriers and obstacles. The terrain is examined and catalogued in three categories: favorable for tank action, difficult for tank action, and impossible for tank action. These classifications are in terms of the degree to which the terrain alone limits the tank's mobility and not in terms of those limitations imposed by man-made opposition. Thus the terrain most favorable would be open, rolling terrain where tank movement is least restricted, but fields of antitank fire and other antitank means are also least restricted. For this latter reason, tanks will be forced to avoid such open terrain, and his reconnaissance may indicate that from the tankman's point of view, the terrain labeled above "difficult for tank action" will be that which the tank units should use. Although difficult terrain will slow his movement, the cover and concealment which such terrain affords him might more than compensate for his reduced rate of advance. If possible, mines are placed so as to deny to enemy tanks those approaches in the favorable category, thus canalizing hostile tank attack into difficult terrain. Antitank guns are then sited to cover the difficult approaches, in which the tanks will be slowed down and forced into short lateral movements which will expose their

more vulnerable sides. If possible at least one gun should cover the minefields, but if this is not possible rocket launchers will suffice for this mission. At all times, minefields should be covered by designated riflemen. If the terrain does not permit the antitank guns to cover the difficult approaches, the mines may be employed in such areas and the guns sited to cover the favorable approaches.

In the attack and all fast moving situations there will, of course, be less time for coordination of antitank guns and mines. Mines may be employed to block favorable entries to the zone of the regiment from the flanks and rear. Such mines may be left in place and guarded until taken over by other units, or taken up for re-use elsewhere. In certain situations, it may be necssary to provide antitank mine protection along routes of advance in rear of rifle units, anticipating the possibility of enemy tanks breaking through from the front. There will rarely be time for intricate coordination between antitank mines and guns in attack situations, beyond the siting of certain guns to cover mines. To a greater extent than is true of the mines, the guns will relate themselves primarily to the attacking units rather than to the terrain. This is possible because they are more mobile than the mines. In withdrawals, mines laid to hinder pursuit are guarded until covering forces have passed through and are then left in place.

The battalion antitank guns, with the aid of rocket and grenade launchers, will be fully occupied in maintaining antitank defenses for the forward elements. In situations involving wide frontages, numerous avenues of tank approach, or difficulties of control, it may even be necessary to attach additional guns from the regiment to the battalion. To accomplish their mission these guns will be emplaced well forward, either just behind the most forward ridge line, or when such positions will not permit fields of fire in front of the most forward elements, at points forward of this last mask. Mutual support between guns is to be provided wherever possible. This support will be lateral as well as in depth, and whenever possible, each gun will be supported by more than one other gun. Sometimes it will be

necessary to depend on rocket launchers to provide necessary support. In actions in which antitank means are heavily engaged, it will be extremely difficult to manhandle 57-mm guns rapidly enough to move to new locations after carrying out fire missions from exposed positions. The proportion of antitank guns destroyed by enemy fire will be high in such situations, but the important thing is that, however short the life of the gun in action, the casualties among hostile tanks shall be even greater than the casualties among our antitank guns.

The regimental guns detailed to back up the defense will have more latitude in the selection of positions. They should be placed where they can be readily hauled back into sufficient defilade to provide a covered route to alternate positions. In guarding against mechanized break-throughs, they may have the choice of terrain extending some distance back from the most forward elements. However, where feasible, such positions should be within mutually supporting distance of the battalion guns. In the normal situation of two battalions forward and one in reserve there will be sufficient antitank firepower to accomplish the several missions of the regimental guns. The antitank platoon of the reserve battalion, while defending the battalion position, will form an integral part of this defense in depth. Thus four platoons of antitank guns may be echeloned behind the forward battalion guns to provide the necessary depth to the defense and afford all-around protection.

All of the antitank gun squads, regimental and battalion alike, have rocket launchers included in their armament. These, like the other launchers in the regiment, are allotted for the organic close-in protection of the squad and the gun. When employed they are manned by personnel of the squad. This limits them to positions within a very short radius of the gun position, since all personnel may be required to serve the gun, and will certainly be required whenever long or difficult movement of the gun is necessary. However, even within this limitation the launchers will be able to contribute vitally to the general antimechanized defense at the same time that they provide protection for the gun. The

gun will be located where mechanized attack is most probable. When such attack comes, and when tanks get within range of the launchers, it will be possible for the squad to deliver the fire, not of just one antitank weapon, but of several. Furthermore, within the limits prescribed, the launchers will be placed where they can best cover any blind spots within the sectors of fire of the guns. It follows necessarily that the most successful plugging of holes in the defenses of the guns will at the same time contribute most to the antimechanized defenses of the battalion or regiment as a whole.

Occasionally there will be an important mission in the antimechanized defense for which the guns are unsuited but which the launchers can accomplish. In such a situation the antitank officer may employ launchers from one or more front-line rifle units, or as an alternative, he may use launchers from his own unit for this purpose. To use this latter method, however, might require that the launcher be removed a considerable distance from the gun position. This is simply an example of this officer's responsibility and authority over all the launchers. An excellent example of such a situation occurs in one of the problems presented at The Infantry School. The battalion guns and one platoon of regimental guns are deployed in depth in this problem, covering a battalion defense area in rolling terrain. Avenues of approach along the flanks, open areas to the rear, and most of the ground to the front can be satisfactorily covered by the guns. But at the extreme forward limit of the area, a steep slope runs down to a draw and thence to heavy woods. The draw constitutes a covered avenue across the front of the position, and the antimechanized plan allots mines to this avenue. The steepness of the slope makes it impossible to cover the draw with any gun emplaced behind the military crest, while any gun forward of this crest would be wholly exposed and have a field of fire of less than 200 yards to the edge of the woods. The solution is to place launchers on this military crest from which the mined area is well within effective range, whereas the nearest antitank guns are at least 200 yards farther to the rear.

VII

Tank support of a general attack might be in either of two forms. The first, less orthodox but probably more frequent, will be carried out by small numbers of tanks which will probably be accompanied by infantry. This form provides a limited penetrating and ground-holding force. In addition to adding punch to the attack, the tanks are considered to have a high morale value for the foot troops which they accompany. But in small numbers, the tanks' penetrations would be too shallow to prove seriously disrupting. Since tanks alone cannot hold ground, an unaccompanied small tank-raid in the attack would serve no sufficient purpose. Such a maneuver, therefore, may be regarded as an infantry action supported by tanks. This characteristic of such an operation will limit employment of the tank's ability to move rapidly and attack from unexpected directions. The attack will come from the front—or shallow flank—and spend itself against the echelons of defense.

Tank support of a defensive operation may consist of small groups of tanks which attack without accompanying infantry. Such actions will be in the nature of covering maneuvers. They will be characterized by much wider sweeps and greater surprise in the direction from which they approach. They will be hit-and-run affairs, designed to create the maximum diversion in the minimum of time. To meet them most effectively the antitank plan should permit efficient operation against forces approaching from any direction. This emphasizes the necessity for *all-around defense* as well as for *mutual* support. If rearward guns are first in the path of such an attack, guns farther forward should be able to reverse their direction and support such rearward guns. To defeat the purpose of such attacks, the hostile tanks must be destroyed with minimum disruption of the general forward movement of the regiment in its attack. Sufficient force should be brought against the raiding tanks to eliminate them, but all antitank units that are not required to meet these tanks should continue on their missions of supporting, and keeping up with, the attack echelons.

The large tank attack is considered the most effective way of employing mechanized forces, and it is action of this type that will best test the effectiveness of antitank protection within the regiment. In such actions, either in defensive or offensive situations, the hostile tanks will advance in several echelons, each echelon composed of several waves. The principle of fire and maneuver will be employed. If possible, advancing tanks will be supported by tanks in hull defilade which will direct their fire against those targets most threatening to the advancing tanks. The tanks will seek first to destroy antitank guns and other large-caliber weapons. Subsequent echelons will strive to eliminate other crew-served weapons and penetrate to rear installations in an effort to disrupt command, communications, and supply. Only in the later stages of the attack will the tanks direct their activities toward infantry personnel. These final echelons of the attack will usually be accompanied by foot troops moving in to consolidate the gains made by the tanks. A counterattack might be launched against these foot troops before the less mobile supporting weapons are brought up. Therefore, one last echelon of tanks may be sent in behind the foot troops with the mission of mopping up and providing defense against counterattack until such time as infantry support weapons arrive. This is a misuse of tanks which sometimes might become necessary. When we are attacking, a test of our antitank efficiency is the speed with which antitank guns are brought up to protect against counterattack.

It may be impossible to distinguish the leading wave of such an attack from a small-scale tank action. Indeed, an enemy mechanized force of sufficient strength might initiate its attack with several diversionary secondary attacks, in order to confuse the antitank defenses as much as possible. It is therefore necessary at all times to conduct action against tanks on the assumption that more tanks are approaching. Certain principles should govern action taken at such a time.

1. Fire is withheld until the attacking tanks are definitely committed. This requires the distinguishing of decoy vehicles as such, appreciation of the terrain so that definite separation of the tanks from the last available protecting mask is certain, and the establishing and definition of points on the terrain which hostile tanks must pass before guns will open fire.

2. Continuous search is maintained to spot stationary and partially concealed tanks in positions from which they will be able to give fire support to the advancing tanks. If they are able to, such tanks will remain in full defilade until they are to enter the fire fight, when they will advance to hull defilade positions. It is essential that observation for such tanks be maintained continuously.

3. If possible, antitank guns which open fire must be prepared to move to alternate positions with maximum speed after executing a fire mission. Their ability to remain in the fire fight is frequently dependent upon the skill and speed of doing this.

As tanks advance into the sector assigned to an antitank gun, and when they have crossed the line marking the predetermined maximum range at which fire will be opened, that gun engages the tanks, firing first upon whatever tank is most threatening and continuing to fire on the first target until it is destroyed, not merely until it is stopped. If the tanks come on in such force that not all are stopped by the antitank guns, they are taken under fire by the rocket launchers and grenade launchers as they come within effective range of those weapons. Tanks in hull defilade and at long range are normally engaged by infantry cannon and mortars and by artillery. Such tanks are not easily hit by antitank guns, and are in a position to deliver very accurate fire on antitank gun positions once the positions are revealed by muzzle blast. Such tanks are more dangerous than moving tanks until the latter threaten to overrun emplaced weapons and occupied positions. This situation calls for judgment on the part of antitank commanders. However, where such fires are available, heavy mortars, infantry cannon, and artillery can deliver effective fire on halted

tanks. Conversely, these same weapons in the enemy's force can fire at antitank guns. Therefore, the absence of hostile tanks firing from hull defilade is no reason for neglecting to move to alternate positions. It is safe to assume that the first muzzle blast emitted by an antitank gun will set in motion a chain of events in the enemy ranks which will culminate, very likely within a quarter of an hour, in the bursting of hostile artillery shells around the gun position.

As the hostile attack continues in successive waves, its mass and momentum will result in certain tanks penetrating beyond the sectors of the forward antitank guns. The regimental guns will engage such tanks. At the same time, all installations approached by the penetrating tanks, such as mortar and cannon emplacements, command posts, supply and communications installations, will bring the power of their launchers against tanks which threaten their positions. Infantry cannon will employ direct fire upon tanks which appear where they can be engaged.

All of this produces an immense total of antitank fire within the regiment. Any tank attack that cannot be stopped will be of major proportions, made up of many successive waves. While this action is still in its early stages, tank destroyer units allocated to the division, and successively those allocated to larger units, will be alerted and, if required, moved in to combat the tank attack.

VIII

From the isolated mortar squad with its single rocket launcher to the tank destroyer group with its many powerful cannon, our antitank echelons provide a connected system of resistance to mechanized attack that is capable of meeting force with equivalent force. To the individual soldier in the front line, massed hostile tanks bearing down are a fearful sight. That, indeed, is a large part of their purpose. Since the early Persian cavalry and scythed chariots, mounted forces have been employed on the principle that shock action plus speed produces terror. Poorly trained troops, unprepared for the terrifying spectacle, will

break and run. Then it is a simple matter for the charioteer —or the tank driver—to overrun the fleeing mob. The modern antidote to such terror is understanding of two things—the limitations that handicap the enemy soldiers in the tanks; and, the extensive means which our forces possess for combatting tanks. The foot soldier cannot outrun a tank—he can outfight it.

Once they are taken under fire, enemy in tanks have their vision so restricted that they can neither move rapidly, maneuver precisely, nor aim accurately. Coordination between tanks is extremely difficult. Observation is so poor that even targets that are exposed and nearby cannot readily be picked up. The man in the tank is locked in an iron cell, jostled unmercifully, never certain that he will not suddenly find himself engulfed in flames or pierced with innumerable particles of red-hot metal. Once this situation of the enemy in the advancing tanks is clearly understood, our infantrymen will be able to forget their own terror in concentrating on the job of giving the hostile tankman better cause for terror.

The understanding of our own antitank organization is equally reassuring. A score of tanks descending upon a rocket team or antitank grenadier will seem overwhelming if those individuals think of themselves as the sole objective of all that mobile armor. But the soldier whose training has given him the sense of membership in a team will direct his weapon at one of the tanks with supreme confidence in the other rocketeers, rifle grenadiers, and antitank gunners of his battalion and regiment. If all the tanks are not stopped before reaching his position, he will be in his foxhole or have one close at hand to leap into at the last instant, knowing that the farther the tanks penetrate, the more numerous and more powerful will be the guns to blast them.

The tank may be new in form, but it is old in principle. And that principle of inspiring terror must still bow to the more fundamental principle that infantry—the better infantry—wins battles.

CHAPTER 3

Night Training of The Individual Soldier

A highly trained group of men working under cover of darkness can often inflict more damage on the enemy than may a much larger force operating by day. As the first step in efficient teamwork is the sound instruction of the individual, the importance of thorough training in night operations for each combat soldier cannot be overemphasized.

Night operations are difficult. Because of reduced visibility, methods must be governed largely by what the men *hear* rather than by what they *see*. Noises are amplified at night, and silence of movement is vitally important. Therefore, the first objective of training is to teach the soldier how to move silently, how to observe, and how to protect himself in darkness against the enemy. Then comes practice, teamwork, and more practice.

This article presents a series of conferences and demonstrations which serve as basic groundwork for later practical work. They teach proper conduct during night operations and also how each soldier may interpret intelligently the errors committed by other soldiers. This instruction is given at night either in three one-hour periods, or in a single period of three hours.

The following material outlines the demonstrations conducted at the Infantry School and furnishes a running account of the instructor's comments. Unit instructors who use the material will, of course, have to make minor changes in the commentary, and also adapt their instruction to fit

local conditions of terrain, equipment, and available demonstration troops. As far as possible, however, this presentation deals only with equipment and facilities which are available to the average unit.

Figure 6 shows the disposition of demonstration troops and the locations of previously installed facilities for the presentation of this instruction at the Infantry School. Exact duplication of this plan is unnecessary, and the diagram is offered merely as a suggested arrangement.

One demonstration described below requires terrain which provides a line of sight extending 900 yards from the class. Another requires a similar line extending 350 yards. Terrain requirements of the others can be fulfilled by an area approximately 200 yards square, in which the demonstration troops perform, and which can be observed from an adjoining area sufficiently large to permit assembly of the men receiving instruction.

The number of demonstrators can be kept to a minimum by having each participant perform in several of the demonstrations. Individual assignments must be based not only upon the man's skill in the part he plays, but also upon the sequence of the demonstrations. Obviously, it would be impracticable for the same individuals to participate in two consecutive demonstrations in widely separated areas. A list of the demonstration personnel used in each period is included, following the instructor's commentary.

Assistant instructors, thoroughly rehearsed in this entire presentation, should be available to supervise the placing and cuing of the demonstrators.

The actions of the demonstration troops are controlled by signals from the instructor. The necessity for rehearsal of demonstration troops with the instructor is obvious. Careful timing and coordination are essential. Flashlight signals are a satisfactory means of cuing the actions of the demonstration troops and are used for this purpose at the Infantry School.

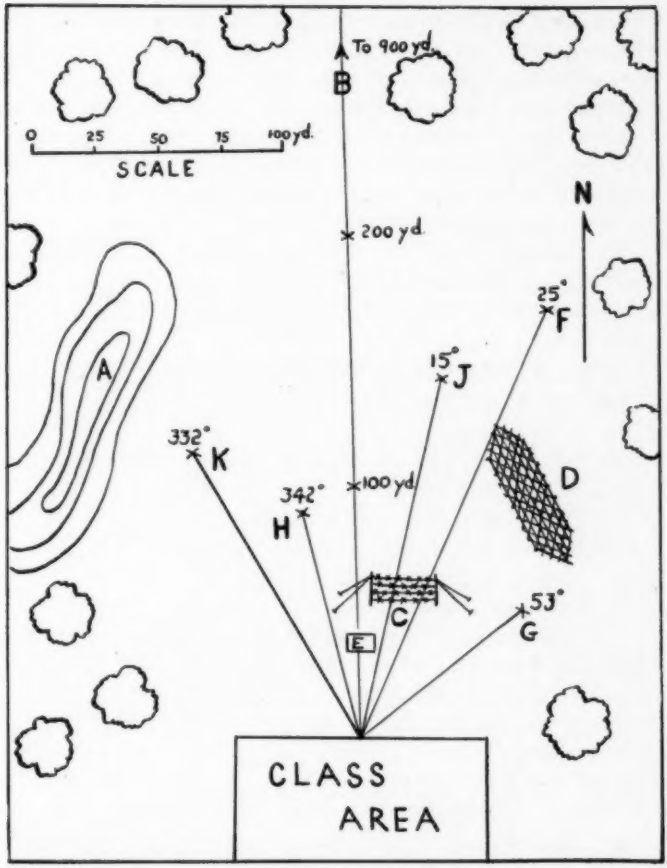


FIGURE 6.—Schematic diagram showing layout of instruction area. Minor changes must be made in this layout in order to adapt it to local terrain.

Key to demonstration areas:

A—Hill on which silhouettes are staged.
B—Line on which men for lighted match and rifle-fire demonstration are stationed.
C—Wire installation for wire cutting demonstration.
D—Double apron wire installation, 50 feet long, for wire crossing demonstration.
E—Instructor's area for close-in demonstrations.
F, G, H, J, and K—Designated positions at which lights appear and to which the class measure and record azimuths.

Lighting facilities are necessary to illuminate certain demonstrations wherein the class is to see the action. This may be accomplished by means of long extension cords if electrical outlets are available nearby. Another method is to park vehicles around the demonstration area so that their headlights will shine on the portions to be illuminated. The lights are turned off and on only upon signal of the instructor or a designated assistant.

The equipment used at the Infantry School follows the instructor's commentary for each period.

1ST HOUR

The purpose of tonight's instruction is to illustrate the methods of the individual acting alone or as a member of a patrol during darkness.

This training of the individual soldier is divided into five phases. They are:

1. Dress and movement at night.
2. Control of patrols at night.
3. Maintenance of direction.
4. Eye and ear training.
5. Technique of wire, flares, and ambush.

This instruction consists of a series of demonstrations pertaining to night training; these demonstrations are presented as an orientation course at the beginning of your night training.

Dress and Movement at Night

(*Two men, properly dressed and armed for a night patrol mission, take position in front of the class.*)

First, we will take up some points concerning the manner in which individuals or members of a night patrol should be dressed.

These men have taken a number of precautions in their dress which enables them to operate more effectively. Let's start with their feet and work upward.

If possible, the men should wear rubber-soled sneakers, or basketball shoes so they can move silently over hard or

rough stony surfaces. The Quartermaster Corps recently announced that a "jungle shoe" with rubber soles and high canvas uppers is now in production. This shoe is very satisfactory. However, if it is impossible to obtain such shoes, the service shoe with composition sole and rubber heel is a better substitute than the type which has a leather sole.

These men have removed their leggins and tied their trouser-legs with cord to reduce the possibility of snagging on brambles or brush. Leggins are made of relatively stiff canvas with a hard surface that makes a scratching sound when brushed against low growth such as hard grass or twigs.

One of these men has turned his belt buckle around to the side to allow him to move in a prone position without scraping the buckle against stones or hard surfaces. The other man has solved the problem by doing away with the belt entirely, and replacing it with rope.

Troops in the Solomons found it necessary to wrap their identification tags separately in tape to prevent noise from the tags jingling together and betraying them.

Notice that these men have blackened their hands, faces, and necks so that these do not reflect light and appear as white spots in the darkness. This may be done with burnt cork, charcoal from burnt wood, or even with mud if no other means is available.

The mouth should be kept closed to avoid the possibility of light reflecting from the teeth; and similarly the eyes should be kept about half closed to prevent the whites from reflecting light.

These men are not wearing helmets. When a helmet strikes against low branches, wire, or brush, a characteristic sound results which is likely to attract the enemy's attention. If a head covering is desired, a stocking cap such as the issue wool knit cap, M1941 is recommended.

Now, how should these men be armed? Depending upon their mission, they might be armed with rifles, but for night work generally they will be able to function faster and more quietly if they are armed only for close-in work. A handy

weapon for night work is the trench knife. (*Instructor holds up knife for class to see.*) This knife can be used to thrust upward at the opponent's belly, or, if you should miss, a continuation of the same thrust will lead to the soft area of his underjaw. A blackjack, a short piece of pipe, or a stout club are good, silent weapons for close combat. Blackjacks might be either standard commercial types or improvised. (*Instructor shows a standard blackjack and an improvised blackjack.*) This improvised blackjack is easily made by filling a sock with pebbles or wet sand. The method of using these weapons is obvious, but it should be remembered that the enemy probably wears a helmet, so some vulnerable spot other than the head should be your target. A blow on his neck with one of these weapons can have a fatal effect. A garrote (*instructor exhibits a garrote*) made of piano wire with handles on each end can be looped around the opponent's neck. Pulling on the handles can cause strangulation, or even decapitation. A small, single-bladed axe, such as the intrenching axe, is well adapted to stunning or killing an enemy from the rear. The best spot to hit is the area between his shoulder blades. If it is desired only to stun him, the head of the axe should be used. If it is desired to kill him, striking in the same area with the sharp edge of the axe will sever his spinal cord. To cover a get-away, or when silence is not necessary, the hand grenade is useful, because it is effective and easily carried.

You are already familiar with the daylight method of hitting the ground, but during darkness, we use a different method. These two men will demonstrate first the daylight method of hitting the ground. (*Demonstrators go down on knees, and into prone position, breaking their fall with the butt of the rifle.*) In using that method, a loud clicking sound results from the jarring of the operating rod of the rifle. During darkness, this sound betrays the presence of the man, and a silent method must be used. With the rifle held at high port, the left leg is advanced. (*The two men demonstrate each action as it is described.*) The butt of the rifle is carried up under the right armpit and held there,

with the right hand grasping the rifle at the balance. The men go down on the right knee and the left hand; they lift the left leg high and to the rear; and then extend the right leg in a similar manner and go into the firing position, bringing the rifle up to the shoulder. In order that you may hear how effective this method can be, the men will go through it again without my talking. (*Men demonstrate this action without commentary.*)

The creeping or crawling methods of daylight are unsatisfactory for use in or near enemy territory at night because these movements produce a shuffling sound. (*The two men creep.*) I believe you all heard the sounds they made as they moved. Close-in work at night implies movement within 10 to 20 yards of the enemy, and we must employ more quiet methods. One such method, which can be compared to creeping, is the "bear crawl." (*The two men demonstrate this method as it is described.*) The bear crawl is done on the hands and knees, and the rifle is lifted from position to position as the advance is made. Feeling with the hands for twigs, leaves, or other substance which might make a noise, the man clears a spot on which to place his knee. Keeping his hand at that spot, the knee is moved forward until it meets the hand; the knee is then placed on the ground, and the action repeated with the other hand and knee. Similarly, after clearing a position for the rifle, it is lifted and moved to the front.

Another method of movement at night is the "belly crawl." This can be compared with the daytime method of crawling. (*Men demonstrate daytime method of crawling.*) Again, I think all of you could hear the shuffling and scraping sound they made as they crawled. The belly crawl is done from a prone position, the weight of the body, being supported on the elbows and toes. The butt of the rifle is carried under the right armpit. The right forearm is brought under the rifle, with the right hand grasping the left wrist. The rifle is held in the left hand at the balance. Keeping the back straight, much as you do in "push-ups," the body is lifted and drawn forward on the elbows and toes. By moving

in this manner, a soldier can avoid rubbing or scraping the ground. Since this method is much more fatiguing than the bear crawl, it is best saved for movement within very close range of the enemy.

(*Demonstration troops withdraw.*)

Control of Patrols at Night

Now I shall show you a formation that a reconnaissance patrol might use when operating at night. It is well to remember that dark and stormy nights are best for patrolling. (*Six-man patrol moves out in front of class to demonstrate the actions as they are described.*)

These men are in a diamond formation, which provides all-around protection. There is the point (*point raises hand*), the right flanker (*raises hand*), the left flanker (*raises hand*), and the rear point (*raises hand*). The two men in the center are the patrol leader (*raises hand*) and the special scout (*raises hand*), whose duty it will be to accomplish the close-in work.

Remember, this is a reconnaissance patrol and that it should avoid combat if possible. The men are armed with knives and grenades which they would use to make their get-away if surprised. If they were armed with rifles, they would not necessarily return fire if fired upon. They would return fire only to avoid capture or if necessary to accomplish their mission. If they are fired upon, they should withdraw if possible, and go around the area from which the fire is coming.

To move the patrol forward the leader does not use an audible signal, but moves up to the point and taps him on the shoulder. (*Men demonstrate as action is described.*) Because these men are well trained, each knows the meaning of movements or signals used by the leader or point. When the point is tapped, he moves forward. The flankers move when they see the point move, and the rear point controls his movements by observing either the flankers or the leader and special scout.

To halt the patrol, the leader quickens his pace and again taps the point. Upon that signal, the point stops and goes down to a prone position, observing to the front. The flankers, observing the actions of the point, also stop and assume a prone position, each observing to his respective flank; the rear point, controlling his movements by watching those ahead, also stops and takes up a prone position, observing to the rear. Thus all-around protection is maintained.

The members of the patrol assume a prone position not only for purposes of safety, but also because with their ears close to the ground they can more readily hear the sound of men walking. A patrol operating at night will listen as much if not more than it will move. By assuming a prone position, these men avoid making distinct silhouette targets of themselves against the sky. Also they can more easily see other persons and objects silhouetted against the sky.

To have the patrol rise, the leader will again tap the point. Because he is experienced and well trained, the point knows this signal means for him to rise only. The flankers, who occasionally glance toward the point while they are observing, now see that he is up, and they should also rise. But one man didn't see the others rise, so the patrol leader must move to him and tap him. Either that man was not watching the others as closely as he should, or else his position was such that he couldn't see them. Whatever the reason, it is the patrol leader's job to see that the man is not left behind.

Notice the action of the point. (*Point presses his Adam's apple with thumb and finger.*) Apparently, he was about to cough, but he succeeded in stifling it. You can frequently stifle a cough by gently pressing the Adam's apple between the thumb and finger. Be careful not to press too hard, however, or you will aggravate the cough.

After satisfying himself that all men are present and ready to move, the leader moves up to the point and taps him a second time. That signal means to move out.

Let us assume that this patrol has moved far into enemy territory, and the point suddenly hears some sound or action.

He will immediately stop and take a prone position. The other members of the patrol, observing the action of the point will do likewise.

The patrol leader and the special scout, being the best trained and most experienced members of the patrol, will move out to investigate. The other four men remain where they are and act as "protectors." Two men can move more cautiously and with greater safety than the entire patrol. Using the belly crawl, the leader and scout move away from the others. They make their investigation and reconnaissance, take whatever action is necessary, and return to the others.

A patrol operating at night should take advantage of any sound such as shelling, wind rustling through trees, or distant firing to push forward. Talking is prohibited. Even whispering is prohibited, except in cases of absolute necessity. If it is necessary to whisper, you should first expel most of the air from your lungs to avoid hissing. (*Demonstrators withdraw.*)

For this next demonstration, we will assume that the patrol you just saw has been working in this direction and is now halted in a draw near the enemy. During the time since they left their protectors several hours ago, the patrol leader and his special scout have reconnoitered the entire area to the front, and have located the enemy outposts. Since part of their mission is to secure identification of the opposing troops, the patrol leader and his scout will demonstrate how to take out an enemy sentinel and then search him.

(*Soldier dressed as enemy sentinel and armed with rifle moves out in front of class, and takes up prone position facing class. Patrol leader and special scout take prone positions five to ten paces in rear of the sentinel. They start moving forward by means of the bear crawl.*)

As they come closer to the sentinel, they change to the belly crawl and maneuver to put him out of action. Approaching from the rear, because the sentinel will be less suspicious of slight noises from the direction of his own

lines, the two men move up slowly and quietly. The patrol leader will move to beside the sentinel; the special scout will remain back near the sentinel's legs. When the patrol leader has reached a position from which he can act, he will get up on his knees, grasping his knife in his right hand in such a way that he can deliver an underhand blow at the sentinel's throat.

Notice the special scout. He thought he was going to sneeze, but he controlled it by pressing upward with his fingers against the base of his nostrils. That method can often stop a threatened sneeze.

When both men are in position, the leader will make a slight noise to attract the sentinel's attention. As he looks around, the leader will thrust the knife home in the sentinel's throat, and at the same time, he will quickly throw his left arm around the sentinel's head and stifle any outcry by placing his left hand over the mouth. The special scout grasps the sentinel's legs and falls on them, thus preventing any kicking or convulsive movements at the moment of death.

Before moving on, the leader and scout will search the body for any identification or documents. However, they must not move the body to make this search, for in doing so they would very likely make some sound which would disclose their presence. (*Demonstrators complete the search of the sentinel for identification, then withdraw to the rear of the class.*)

For positive protection at night, sentinels must be posted in pairs. One man of each pair should be in a well concealed position from which he can cover anyone challenged by his partner. Sentinels posted in pairs NEVER stay close together nor carry on conversation because at any time, they may be under hostile observation. They should, for added protection, change their exact location, within restricted limits, from time to time. For example, in covering a trail they might shift up or down the trail a few yards or from one side to another. However, each must always know the exact location of the other. When challenging, the sentinel

who voices the challenge must be sure he is not blocking the line of fire of his mate. If necessary, he moves to allow the other to cover the challenged party. If the party who has been challenged fails to halt and continues to close in, the concealed sentinel kills him before he can get within knife range of the other sentinel. (See figure 7.) Notice that here the sentinels are in the prone position in order to present as small a silhouette as possible. In a wooded area they can be erect if they take proper advantage of the cover of tree trunks.

(*One demonstration sentinel is posted directly before the class in a prone position, while the other is concealed in the edge of the grass or brush to the front. A soldier advances to be challenged, approaching at an angle which places the challenging sentinel between, or nearly between, the advancing man and the concealed sentinel. The challenging sentry moves back or to the side a few feet to clear the line of fire. The advancing man is challenged. He replies correctly and the challenger allows him to pass. As he passes he leaps upon the sentinel to knife him, whereupon the concealed sentinel kills the assailant. Demonstration troops withdraw.*)

There you saw the most important reason for the use of double sentinels. There have been incidents where the Japs obtained the correct password by listening in, and then used it on unsuspecting American soldiers. Though the Japanese have difficulty pronouncing our letter "l," giving it somewhat of an "r" sound, reports from the Solomons mention encounters with several Japanese who spoke perfect English. No matter how efficient a lone sentinel is, he works under a hardship, and the protection of the command usually demands the use of double sentinels.

Demonstration No. 1—Dress and Movement at Night.

Equipment

2 Rifles, M1.
1 Trench knife.
1 Blackjack.

FIGURE 7.—Double sentinels provide protection from the enemy who attacks after having given the correct password and been allowed to pass. In the illustration above, the challenged party was allowed to pass, and as he approached to within knife range, he turned to attack the sentinel. This is seen by the hidden sentinel who fires on the enemy before his ruse is successful.

1 Sock, half filled with sand.
1 Garrote (3-foot strand of piano wire with wooden handle attached to each end).
1 Hand grenade (dummy).
1 Intrenching axe.
1 Set of taped identification tags.
2 Caps, wool, knit, M1941.
2 Pairs shoes, issue, with composition soles and rubber heels.
2 Fatigue suits, blue denim.
Cord for tying trouser legs.
Burnt cork for blackening faces and hands of demonstrators.

Personnel

2 Enlisted men dressed in blue denim fatigue suits, wearing wool knit caps and issue shoes with composition soles and rubber heels. Their trouser legs are tied at the bottom with cord. Their faces and hands are blackened. One man wears his belt buckle at the side; the other man has substituted a length of rope for his belt and wears individually taped identification tags. Each man is armed with an M1 rifle.

Demonstration No. 2—Control of Patrols at Night.

Equipment

6 Fatigue suits, blue denim.
6 Pairs shoes, issue, with composition soles and rubber heels.
6 Caps, wool, knit, M1941.
6 Trench knives.
3 Hand grenades (dummy).
Burnt cork for blackening faces and hands of demonstrators.

Personnel

1 Noncommissioned officer (dressed same as below).
5 Enlisted men dressed as described in Demonstration No. 1. Their faces and hands are blackened. All are armed with trench knives. Some are armed with hand gren-

ades also. They are in a diamond formation and appear before the class upon signal of the instructor. Their actions are cued by the words of the instructor's commentary.

Demonstration No. 3—Removal of Enemy Sentinel.

Equipment

1 Enemy uniform, with helmet (may be improvised).
1 Rifle.
2 Fatigue suits, blue denim.
2 Trench knives.

Personnel

3 Enlisted men. One is dressed to represent enemy sentinel and is armed with a rifle. The other two are dressed as described in Demonstration No. 1, and are armed with trench knives. They move into position upon signal of the instructor. Their actions are as described in the text.

Demonstration No. 4—Double Sentinels.

Equipment

1 Enemy uniform (may be improvised).
1 Trench knife.
3 Helmets.
2 Fatigue suits, blue denim.
2 Rifles, M1.
1 Round blank ammunition, Cal. .30.

Personnel

3 Enlisted men (same three men as used in Demonstration No. 3, but all wearing helmets). The two sentinels are armed with M1 rifles. The rifle of the hidden sentinel is loaded with one round of blank ammunition. The men take position upon signal of the instructor. Their actions are as described in the text.

2D HOUR

Maintenance of Direction

Maintenance of direction is a very important part of the night training of the individual soldier. At this time, we'll take up the use of the lensatic compass at night. First, I

shall give you the names of the parts of the compass which will be mentioned later. This is simply to help you follow the explanation because I am going to mention only those parts used at night. Take out your compasses and flashlights, and locate the parts on your compasses as I discuss them. You may work in groups, one man holding the compass while another holds the flashlight.

(*If a chart or an enlarged model of the compass is available, the instructor can point to the parts as he names them. See drawings No. 24 and 25 of CCTB No. GT-9.*)

This is the cover; these are the luminous sighting dots; this is the eye piece; this is the lens; this is the slit in the eye piece; this is the glass face; this is the luminous line on the glass face; this is the compass card or dial; this is the luminous arrow; this is the luminous index dot, which is on a line with the two luminous sighting dots; and this is the dampening plunger, which is used to retard the movement of the dial or to hold it in place. One type of lensatic compass now being issued does not have a dampening plunger.

To use the compass in night marching, you must first determine from a map or some other source the azimuth on which you wish to march. Next, raise the cover of the compass and release the dial by raising the eye piece. Then, turn the compass until your predetermined azimuth is next to the index dot. Now turn the glass face until the luminous line is directly over the luminous arrow. If the compass has a dampening plunger, the dial can be held in place while the glass face is turned, and the alinement can be more easily accomplished. The compass is now adjusted for marching on the predetermined azimuth, but it can still be used for measuring other azimuths without losing this adjustment so long as the glass face is not disturbed.

Using your flashlights, adjust your compasses to march on an azimuth of 25 degrees. Later I shall have a light appear so that you may check your accuracy. Remember that this azimuth must be set where light is available. (*Pause long enough for class to adjust compasses.*)

Now that your compass is adjusted, to march on the predetermined azimuth open the cover nearly flat, being sure to hold the compass level so that the dial will not bind. Raise the eye piece to release the dial, and turn the compass until the luminous arrow comes to rest directly under the luminous line on the glass face. Then, sight along the line of luminous dots and select some point on the skyline which is in line with the dots. The slit in the eye piece can be used to assist in the alinement of the luminous dots on the point. March to that point and from there repeat the process, selecting another point along the predetermined azimuth. In this manner you can march accurately on the desired azimuth.

Using this method, select a point on the horizon to your front which you think is on an azimuth of 25 degrees. (*Pause long enough to allow class to select a point.*) Now I shall have a light appear. (*Instructor signals to an assistant who was previously placed at the desired point. The assistant exposes a light.*) That light is 25 degrees from the center of the class. (*Assistant extinguishes light.*)

Also, it is possible to record, in the dark, the azimuths to two different objects on the same compass and without the use of a light provided your compass is of the type which has a dampening plunger. Of course, the azimuth readings must be measured from a point which can be definitely located on the ground and on a map in order to be of any value. Also, the azimuths recorded cannot be read until light can be used.

Again working in groups, follow the steps on your compass as I explain them. To record the first azimuth, open the cover so that it is almost flat, and free the dial by raising the eye piece. Then sight along the line of luminous dots to the object to which you wish to record the azimuth, and allow the dial to come to rest. With the luminous dots alined on the object and the dial at rest, press in on the dampening plunger, and lock the dial in that position. Now turn the glass face until the luminous line is directly over the luminous arrow. If you have the new type lensatic

compass, which has no dampening plunger, turn the compass so that the luminous dots on the cover are alined with the object, and rotate the glass face of the compass until the luminous line is directly over the luminous arrow. The azimuth is recorded. However, the compass can still be used, provided the glass face is not disturbed. Later, when light is available, the compass can be mounted so that the luminous arrow again coincides with the luminous line, and this azimuth can be read.

Turn your flashlights off, and record the azimuth to the light which will appear to the front. (*Instructor signals to an assistant who was previously placed at the desired point. The assistant exposes a light and the students record the azimuth to the light. The light should be exposed for approximately two minutes; then, upon signal of the instructor, it is extinguished.*)

To read the azimuth that you have recorded by this method, free the dial and turn the compass until the luminous arrow comes to rest directly under the luminous line. The azimuth that has been recorded will appear next to the index dot.

Turn on your flashlights and read the azimuth that you have recorded. (*Instructor calls on two or more students for their readings.*) The correct azimuth from the center of the class is 53 degrees.

If the compass is the type having a dampening plunger, the azimuth to a second object can also be recorded in the dark. To record the azimuth to the second object, raise the cover and eye piece as before, but do not disturb the glass face. Again, aline the luminous dots on the object and allow the dial to come to rest. Hold the dial in this position by pressing in on the dampening plunger. Lower the eye piece to clamp the dial in position and close the compass. The azimuth is now recorded, but to release the dial will lose the record. To avoid this, the compass should not be used again until after the record has been read.

Turn your flashlights off, and using the second method, record the azimuth to this next light which will appear.

(*Instructor signals to another assistant who exposes a light in a manner similar to the previous one. This light is exposed for approximately one minute; then, on signal of the instructor, it is extinguished.*)

To read this azimuth, raise the cover, being careful not to release the dial by raising the eye piece. The azimuth that has been recorded by this second method will appear next to the index dot and in line with the slit in the eye piece.

Turn your flashlights on and read the azimuth that you have recorded. (*Instructor calls on two or more students for their readings.*) The correct azimuth from the center of the class is 342 degrees. Remember that after the second azimuth has been recorded, the compass cannot be used nor even opened without losing this record of the second azimuth; and that after the first azimuth has been recorded, the glass face of the compass cannot be moved without losing that record. Remember also that you must have light to read these azimuths and that you must read the second azimuth first.

A soldier who does not have a compass must use some other means of maintaining direction at night. Some useful means are the North Star, prominent landmarks, and the direction of flow of principal streams.

(*Any explanation of the locations of the stars will be greatly simplified by the use of previously prepared charts or a blackboard and chalk with which the instructor can diagram the constellations as he describes them. Even if the stars themselves cannot be seen during the explanation, the chart or diagram will provide a picture image which will assist the student to recognize the constellations when he sees them.*)

To locate the North Star, first find the Big Dipper. (*Instructor shows chart of the Big Dipper and the North Star.*) Working from the handle of the Big Dipper, note that there are three stars in the handle and four in the bowl. These two stars (*pointing*) are known as the "pointers." They are the outside of the bowl. Follow along the line between the

pointers to approximately 5 times the distance between the pointers and you come to the North Star. Notice that you go out in the direction in which the bowl of the dipper would empty. Remember that the Big Dipper revolves about the North Star. It may not always be above the North Star as it is here, but the two pointers will always be pointing toward the North Star.

Another constellation, Cassiopeia, may assist you in locating the North Star. (*Instructor shows chart of Cassiopeia and the North Star.*) The five principal stars of Cassiopeia form a W. This constellation is on the opposite side of the North Star from the Big Dipper. The distance from the North Star to Cassiopeia and from the North Star to the Big Dipper is about the same. Cassiopeia also revolves about the North Star. The top of the W points generally in the direction of the North Star and the Big Dipper. The direction of the North Star is not true North, but for practical purposes may be considered so.

Eye and Ear Training

The next demonstration is designed to teach you to identify certain movements at night, and to show you the necessity of keeping off the horizon.

Along the horizon to your left front are several groups of men. Each of these groups will make certain movements and you will try to identify these movements and tell what these men are doing. You can probably see better by cupping your hands around your eyes, thereby cutting out side glare.

Go ahead, first silhouette. (*Two men dig, one with pick, one with shovel.*) That's good, first silhouette. (*Instructor calls on student to identify movements.*) That was two men digging; one with a pick and one with a shovel.

Now watch for the next group. Go ahead, second silhouette. (*Three men set up a heavy machine gun.*) That's good, second silhouette. (*Instructor calls on student to identify movements.*) That was three men setting up a heavy machine gun.

Watch for the third group. Go ahead, third silhouette. (*Five men string barbed wire.*) That's good, third silhouette. (*Instructor calls on student to identify movements.*) That was five men putting up barbed wire.

Your ability to see at night can also be aided by the use of field glasses. Low-power glasses are better than high-power ones because they admit more light.

Some men are afflicted with "night blindness." These men should not be used for night patrolling or reconnaissance. Night blindness is often caused by deficiency of Vitamin A, and can be reduced by eating eggs, butter, carrots, and spinach and by drinking milk or taking fish oils.

The next demonstration is designed to give you a means of calibrating your hearing and to show you how far it is possible to see a small light such as a lighted match. Along a line extending from the front of the class, there are nine men placed at 100-yard intervals from 100 to 900 yards. On my signal, the man at 100 yards will work the bolt of his rifle three times, and light a match. This procedure will be repeated by each of the other eight men in turn. It is necessary for you to be very quiet during this demonstration. Go ahead, 100. (*Man at 100 yards works bolt of rifle three times and lights match. Then he calls out, "Go ahead, 200." Similar procedure is repeated by the other men.*)

I might mention here that sound travels a greater distance in damp weather than it does in dry weather. Also it has been reported that under favorable climatic conditions, a lighted match has been seen from as far as ten miles.

You will now have an opportunity to observe rifle fire at known ranges. On my signal, the men at 900, 500, and 100 yards will each fire 2 rounds of blank ammunition from their rifles. When you see the flash, start counting, and count until you hear the report of the shot. Count rapidly about like this. (*Instructor demonstrates by counting at a rate of eleven numbers per three seconds. Instructor must practice this.*) After a little practice, you can accurately determine the range to rifle fire by this method, for each number that you count represents 100 yards of range to that

rifle fire. (*Instructor signals, and successively, the men at 900, 500, and 100 yards fire two rounds each of blank ammunition. They wait approximately 5 seconds between shots.*)

A soldier on a night reconnaissance mission will probably gain more information by listening than he will be observing. He should be able to identify and estimate the direction and the distance to various common noises made by troops in the field.

For the next demonstration there are before you several groups of soldiers with certain implements. Each group will make one or more sounds. You are to identify the sound, to determine the direction, and to estimate the distance to its source. Again, it is necessary for you to be very quiet.

Go ahead, first group. (*Noises.*) That's good, first group. (*Instructor calls on student to identify the noises and estimate direction and distance to the source.*) Turn on your light, first group. That was a man with a pick and a man with a shovel digging in rock soil 145 yards to your left front. Turn off your lights, first group.

Go ahead, second group. (*Noises.*) That's good, second group. (*Instructor calls on student to identify the noises and estimate direction and distance to the source.*) Turn on your light, second group. That was a man chopping wood with an axe, a man coughing, and a man dropping several wire pickets on the ground at a distance of 350 yards to your front. Turn off your light, second group.

Go ahead, third group. (*Noises.*) That's good, third group. (*Instructor calls on student to identify the noises and estimate direction and distance to the source.*) Turn on your light, third group. That was a man scraping his helmet against barbed wire and turning the elevating knob of his rifle at a distance of 30 yards to your right front. Turn off your light, third group.

Go ahead, fourth group. (*Noise.*) That's good, fourth group. (*Instructor calls on student to identify the noise and estimate direction and distance to its source.*) Turn on your

light, fourth group. That was a four-man patrol walking along the brush-covered terrain 40 yards to your right flank. Turn off your light, fourth group.

Now, listen for the fifth group. Go ahead, fifth group. (*Noise.*) (*Instructor calls on student to identify the noise and estimate direction and distance to its source.*) That was a man dropping the tailgate of a truck 1080 yards to your front.

Now, listen for some of the sounds a careless soldier might make at night. Go ahead. (*Demonstrator steps on twigs.*) There he stepped on some twigs. (*Demonstrator walks through brush.*) There he walked into a bush. (*Demonstrator's equipment rattles.*) That time he rattled some of his equipment. Only equipment that is absolutely necessary should be carried by a soldier on a night reconnaissance mission. And before he goes out on his mission, he should check to see that none of his equipment rattles. To do this, he should shake himself, or jump up and down. (*Demonstrator falls and cries "Ouch."*) There he stumbled and fell, and as he did so, he involuntarily cried "Ouch." A soldier should be trained to refrain from any outcry.

Are there any questions?

Demonstration No. 5—Maintenance of Direction.

Equipment

1 Lensatic compass (for use by instructor).
3 Flashlights.
1 Blackboard and chalk, or chart showing Big Dipper, North Star, and Cassiopeia. (See figure 8.)
As many flashlights and lensatic compasses as are available for use by the class.

Personnel

3 Enlisted men. These men are each equipped with a flashlight. They are placed at points in front of the class and on the lines of azimuth mentioned by the instructor. They light their flashlights upon signal of the instructor.

Demonstration No. 6—Eye and Ear Training.

Equipment

1 Axe.
2 Picks.
2 Shovels.
1 Machine gun, Cal. .30, M1917, with water chest.
6 Long wire pickets and length of barbed wire.
1 Steel helmet.
10 Rifles, M1.
1 Box of matches (non-safety).
6 Rounds blank ammunition, Cal. .30.
1 Truck (1½-ton or 2½-ton).
1 Haversack.
1 Mess kit with knife, fork, and spoon.

Personnel

This demonstration is divided into four different phases.

(a) *Silhouette demonstration*: Five men perform several different actions on the high ground to the left front of the class. They are silhouetted against the sky. The actions are of the type which the individual soldier might see in the field. All actions are cued by the instructor.

(b) *Sound of rifle bolt and appearance of lighted match demonstration*: Nine men are placed at 100-yard intervals along a line of sight which can be seen by the entire class. In sequence, starting at 100 yards, each works the bolt of his rifle and lights a match. The man at 100 yards is cued by the instructor. After completing his action the man at 100 yards calls to the man at 200 yards, who repeats the action and calls to the man at 300 yards, continuing on out to 900 yards.

The men at 900, 500, and 100 yards will fire blank ammunition toward the class to enable the group to see the flash. The signal to fire is given by the instructor.

(c) *Noises demonstration*: Five groups of men are placed on the terrain to the front of the class to produce noises for the class to identify. They make their assigned noises upon signal of the instructor and turn on their lights upon his second signal.

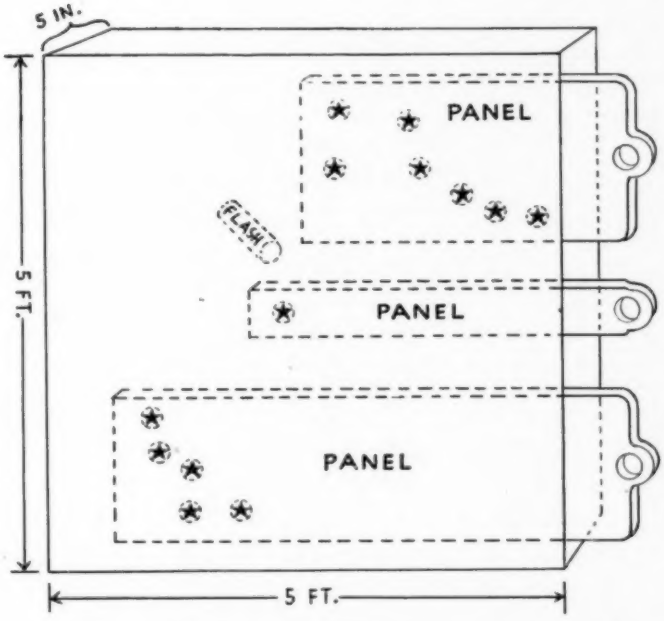


FIGURE 8.—Plans for construction of a mechanical aid to presenting the method of locating the North Star. Holes are bored in the front of the box to represent the stars of the Big Dipper, Cassiopeia, and the North Star, each in its relative position. Corresponding holes are bored in each of the three panels. Panels are attached to skids inside the box to permit movement. The inside of the box is painted white to permit maximum reflection of light from a flashlight inserted in the rear of the box. To show one of the constellations, the panel of that constellation is moved so that the holes of the panel and the holes of the box front are alined.

The first group (2 men) makes sounds of shovel and pick in rock soil 145 yards to left front of class.

The second group (2 men) makes noises of chopping wood, coughing, and the dropping of several wire pickets 350 yards to the front of the class.

The third group (1 man) makes sound of helmet scraping on barbed wire and sound of turning of elevating knob on M1 rifle. His position is 40 yards to the right front.

The fourth group (4 men) makes sound of a patrol walking through brush-covered terrain 40 yards to the right flank.

The fifth group (1 man) drops tailgate of truck 1080 yards to the front upon signal of instructor.

(d) *Careless soldier demonstration*: Man makes noise of walking on twigs, walking through a bush, rattling of mess kit. He falls and cries out. This demonstration takes place 20 yards to the front of the class. It is cued by the instructor's commentary.

3d Hour

In the last period of instruction, we explained a method of recording two azimuths in the dark and without the use of light. You will now have an opportunity to practice this method. Take out your compasses. Do not use your flashlights until I tell you to. Using the first method, record the azimuth to this light. (*Instructor signals to an assistant who was previously placed at the desired point. The assistant exposes a light until, upon signal of the instructor, approximately two minutes later, he extinguishes the light.*) Now, using the second method, record the azimuth to this light. (*Instructor signals to another assistant, who exposes a light in a manner similar to the previous one. This light is exposed for approximately one minute, then, upon signal of the instructor, it is extinguished.*) Take out your flashlights and read the two azimuths that you have recorded. Remember that you must read the second azimuth first. (*Instructor calls on two or more students for their azimuth*

readings.) The correct azimuth to the second light from the center of the class is 15 degrees. The azimuth to the first light is 332 degrees.

The next demonstration will afford you an opportunity to practice estimating the distance to rifle fire. On my signal a man to your left front will fire three blanks from his rifle. Using the method of counting that was described during the last period of instruction, see if you can determine the distance to this gun fire. (*Instructor signals to an assistant who fires three blanks at intervals of about five seconds. Instructor calls on one or more students for their estimates.*) The correct distance is 210 yards.

Now, look to your front where another man will fire three blanks. (*Instructor signals to another assistant who fires three blanks at intervals of about five seconds. Instructor calls on one or more students for their estimates.*) The correct distance is 700 yards.

Now, look to your right front. (*Instructor signals to a third assistant who fires three blanks at intervals of about five seconds. Instructor calls on one or more students for their estimates.*) The correct distance is 415 yards.

Technique of Wire, Flares, and Ambush

The next demonstration illustrates the action a patrol takes to go through barbed wire. (*Demonstration wire patrol takes position in front of class.*) This patrol is in a diamond formation, and the members of the patrol are armed only with knives and grenades. (*Patrol demonstrates as action is described.*)

When the point comes upon the wire, he stops and takes a prone position. The other members of the patrol, observing his actions, do likewise. Notice the flankers and rear point each observing in his respective direction. The patrol leader and special scout belly crawl up to the point, and silhouette the wire against the sky to determine its size and type. The leader decides to go through the wire, so he and the special scout roll over on their backs, and feeling ahead of and above their heads for the strands of wire, they

inch themselves along on the ground, underneath the wire. The other members of the patrol act as protectors and remain on the other side of the wire until the leader and special scout return.

Notice that the leader and scout work together as a team. After one of them has moved a short distance ahead, he stops and holds up the strands for the other. Of course, if these men encountered a tightly strung strand of wire so low that they could not inch under it, they would have to cut it. These men have no bulky equipment to maneuver under the wire. After passing the wire, they will, of course, go on to accomplish their reconnaissance mission. Then, they will return to their protectors and the entire patrol will move back to their own lines. (*Demonstration patrol withdraws.*)

The two men who just crawled under the wire were not armed with rifles. The next demonstration illustrates several different methods of passing through wire with rifles. (*Five men with rifles move into position to pass through the wire. They demonstrate as the action is described.*)

These five men are not in a patrol formation. Each of them will demonstrate a different method of moving the rifle when going under or over wire. When passing through wire with the rifle, it must be locked. The three men in the center will go under the wire, the two on the outside will go over it. Observe the man in the center. He is carrying his rifle on his stomach with the bayonet beside his head. By carrying the rifle in this manner, he is ready to make a quick bayonet thrust should someone approach him as he emerges from the wire; and he also has the use of both hands to feel for and hold the strands of wire.

Now watch the man going under the wire on the left. (*Pointing.*) He is holding his rifle between his body and his right arm, with the bayonet resting on his shoulder. He also has his rifle ready for quick use, and has both hands free.

The man going under the wire on the right (*pointing*) is moving his rifle along on the ground. Notice that as he moves the rifle he places his thumb over the muzzle to prevent dirt from getting into the bore; and that he has the operating rod up, to prevent it from scraping. This method lacks one of the advantages of the other two; the rifle is not in position for quick use. On the other hand, the rifle is not likely to strike the wire.

The men at either end of the wire are walking over it. Instructions are to crawl under high wire and to walk over low wire. To walk over wire, grasp the first strand with one hand, and with the other hand reach forward and feel for a clear spot on the ground where the foot can be placed without touching another strand or any other object that might make a noise. To avoid catching the foot in the first strand, lift the foot up and over, close to the hand grasping the wire, and place it beside the other hand.

The rifle may be slung, as the man on the left is doing (*pointing*), or it may be moved along the ground, as the man on the right is doing (*pointing*). If it is moved along the ground, it should be lifted just off the ground from position to position as the advance is made.

The disadvantages of walking over wire are that the rifle and bayonet are not in a position for quick use, and if you are caught in a flare, no concealment is possible.

All movement through wire is, of course, slow and cautious. Time is of little importance compared to stealth.

It is sometimes asked, "Why doesn't the patrol go around the wire?" In the first place, a patrol probably would not know how far the wire extends. And in the second place, the enemy would probably cover any gaps in the wire by the fire of automatic weapons. Men should be trained to pass through wire where they find it. (*Demonstration patrol withdraws.*)

There may be occasions when you will want to cut a gap through wire. This patrol will demonstrate how to approach and cut wire. (*Patrol forms in front of class and demonstrates the action as it is described.*)

This patrol is also in the diamond formation. The two men in the center are the men who will actually do the cutting. The other four men act as protection for the men cutting the wire.

The patrol must, of course, move slowly and cautiously. When the point comes upon the wire, he moves back a short distance from the wire, and takes a prone position. The other members of the patrol do likewise. The point, flankers, and rear point observe in their respective directions.

The two men detailed to do the cutting then belly crawl to the wire. By looking at the wire from close to the ground, they can see its silhouette against the sky and can decide on the best means of cutting it. Notice the two men who are to cut the wire. One of them carries a pair of wire cutters on his belt. His assistant is now helping him to get the cutters from his belt. The four protectors stay back far enough from the wire to be clear of the fire of automatic weapons covering it. The two men cutting the wire cannot avoid this danger, except by hugging the ground.

It would be difficult for you to see the two men cut the wire there; we'll have them cut several strands here where you can all observe their technique of cutting. *(Two men detailed as cutters move to wire immediately in front of the class. Rest of patrol withdraws. Two men at wire demonstrate as the action is described.)*

Here are the wire cutters which these men will use. *(Demonstrator holds up wire cutters for class to see.)* Both of these men are equipped with metal studded leather gauntlets for handling barbed wire. *(Demonstrator holds up gauntlets.)*

First, we shall show you an incorrect method of cutting wire. Notice that the man cutting placed his cutters on the wire without holding the wire. *(Demonstrator cuts.)* I think you could all hear both the clicking sound made when the wire was cut, and the noise made by the cut ends striking other strands.

Next, these men will illustrate a better technique of wire-cutting. The assistant holds the wire in both hands to keep the ends from flying back when the wire is cut. The other man places the cutters on the wire between the assistant's hands. (*Demonstrator cuts, but clicking sound is still heard.*) Although they exercised greater care in cutting the wire the second time, you could still hear a clicking sound when the wire was cut. Barbed wire is made of mixed grades of metal, some of which are hard and some of which are soft. When wire made from hard scrap is cut, a clicking sound is very likely to result.

To muffle the sound of cutting, two gun patches can be wrapped around the wire. The wire is cut at the point where the patches are wrapped around it. (*Demonstrator cuts.*) I think you will all agree that this method is much quieter. Notice that the patches were not cut through. (*Demonstrator holds up patches.*)

When cutting a gap through barbed wire, the cut strands should be carefully bent or rolled back; the short pieces should be bent to the nearest picket and the long pieces bent far enough to make a sufficient opening for the men who will come through.

Now, one of these men will demonstrate the method a lone soldier uses to cut wire. Again he will use the patches, wrapping them around the wire near a picket. He will cut near the picket to avoid having two loose ends. He grasps the wire near the picket with one hand, and places the cutters over the patches and between his hand and the picket. Notice how he holds the cutters. One handle is held in his hand, and the other handle rests on his thigh. He presses down on the handle in his hand, slowly increasing the pressure until the wire is cut. (*Demonstrators withdraw.*)

Remember, when cutting a gap through wire, that the top strand should be left intact as these men have done. This lessens the chance of the enemy discovering the gap because the contour of the wire entanglement is not broken. Also when cutting a gap through several bands of wire, the gap should be cut diagonally to the front to avoid leaving a well-defined and easily discovered passageway.

Are there any questions?

The purpose of the next demonstration is to illustrate the correct and incorrect actions that might be taken by a patrol when flares are fired.

(*Demonstration patrol takes position in front of class. Each member of this patrol has a flashlight, so that at proper times, these may be lighted and the class can see the location of each member of the patrol. Demonstration patrol acts as described by the instructor.*)

Fire first flare. (*Flare.*) (*Patrol turns off flashlights.*) The members of the patrol heard the flare leave the projector. They dropped to the ground before the flare burst, and remained motionless. That action is correct. (*Patrol turns on flashlights.*) Fire the second flare. (*Flare.*) (*Patrol turns off flashlights.*) This time they were caught unexpectedly by the bursting flare, and ran for cover. I think you could detect them very easily. That of course is incorrect. (*Patrol turns on flashlight.*) Fire the third flare. (*Flare.*) (*Patrol turns off flashlights.*) Again they were caught by the bursting flare, but instead of running for cover, they froze in position and remained motionless. That is correct. (*Patrol turns on flashlights.*) Fire the fourth flare. (*Flare.*) (*Patrol turns off flashlights.*) This time the men dropped quickly to the ground at the moment the flare burst. This method is effective provided you can drop to the ground quickly, so that the movement is made during the fraction of a second, after the flare lights and during which the enemy's eyes are adjusting to the light.

Men must not look at flares, because to do so will cause temporary blindness. You should shut one eye until the flare dies out, then when you open it you will still have your night vision. Also remember that if the enemy is using many flares he probably has few patrols out; and when he is not employing flares his patrols are likely to be numerous. The best time to move is just after the flare has gone out. (*Demonstration patrol withdraws.*)

The next demonstration will illustrate a method of ambush. Patrols should avoid developing fixed habits, such as route, size, and formation. The enemy may learn of these habits and ambush your patrols, particularly if your patrols use the same route to return from their mission as they used going out.

The art of ambush employs quick and silent movement, as well as skillful use of a number of weapons. The use of some of these weapons such as knives, blackjacks, axes, and a loop of piano wire has already been described to you. (*Ambush party moves into position, and demonstrates as action is described.*)

Let us assume that an otherwise good patrol is making the mistake of returning by the same route it used going out. Unknown to the patrol, an ambushing group awaits its return.

To insure the success of its mission, an ambushing group should be at least twice the size of the patrol it intends to wipe out. In our ambushing group tonight, there are two killing parties as well as the actual close-in ambush party. Each of these killing parties has a sub-machine gun or automatic rifle, and two riflemen to protect it. Killing parties, light matches to show your location. (*They do.*) It is the duty of these killing parties to set up a killing zone or lane to prevent the escape of any member of the patrol after the patrol has entered the area of the close-in ambush party. Automatic riflemen shine your flashlights to show your lanes of fire. (*Beams of spotlights indicate lanes of fire.*) Note that the lanes of fire meet and cross in the same manner as the final protective lines of machine guns. Turn off your flashlights. (*Flashlights are extinguished.*)

Close-in ambush party, light your matches. (*They do.*) This party is in a V formation, with the open end of the V in the direction from which the patrol is expected to advance. Prior to setting up an ambush such as this, arrangements must be made for some means of recognizing friend from foe in the dark. The simplest means is to use some word as a recognition signal. When operating against the

Japanese it would be a good idea to use, as previously mentioned, a word with one or more "l" sounds. Against the Germans, a word with a "th" or "w" sound will be more proof against accurate duplication. The word should be repeated two or three times as contact is made. This ambush group uses "Philadelphia."

Now listen and watch for the action. (*Patrol moves into open end of V. One member of patrol stumbles against one of ambush party, and the entire ambush party jumps the patrol. Several of ambush party say "Philadelphia" as they move in. One member of patrol attempts to escape and falls as the automatic rifles open fire in the killing zone.*)

The ambush party will now search the bodies of the members of the patrol for papers, maps, insignia, or other intelligence material. They must search quickly, as they have disclosed their presence by their firing. In their withdrawal, the members of the close-in ambush party move out first, between the two killing parties. They are followed by the two automatic riflemen. The riflemen who were with the two killing parties move out last, and protect the withdrawal of the remainder of the ambush group.

Are there any questions?

Demonstration No. 7—Review of Azimuth Recording.

Equipment

2 Flashlights.

Personnel

2 Enlisted men, each equipped with a flashlight, take positions in front of the class and on line with the azimuths to be recorded. They light their flashlights upon signal of the instructor.

Demonstration No. 8—Review of Night Range Estimation.

Equipment

3 Rifles, M1.

9 Rounds blank ammunition, Cal. .30.

Personnel

3 Enlisted men, each equipped with rifle and blank ammunition, are placed at the desired position. Upon signal of instructor, each man fires three rounds of blank ammunition toward the class.

Demonstration No. 9—Technique of Wire.

Equipment

1 50-foot section of double apron fence.
6 Trench knives.
3 Hand grenades (dummy).
3 Cowbells.
5 Rifles, M1.
5 Bayonets.
1 Large wire cutters.
2 Pair metal-studded leather gauntlet gloves.
2 Gun patches.
1 4-foot section of barbed wire.

Personnel

11 Enlisted men dressed as in Demonstration No. 1. Only five are armed with rifles.

The demonstration is divided into three parts:

(a) *Wire patrol.* Showing method of going through wire when not armed with rifles.
(b) *Wire detail.* Showing method of going through wire when armed with rifles.
(c) *Wire cutting.* Showing methods of cutting passages in wire.

In the event that the double apron fence used for (a) and (b) is too far from the class to permit them to see the details of the cutting, the two men who do the actual cutting can be moved to a small wire installation immediately in front of the class.

Demonstration No. 10—Technique of Flares.

Equipment

6 Flashlights.
4 Flares.
1 Ground projector.

Personnel

1 Noncommissioned officer.
6 Enlisted men.

The noncommissioned officer fires the flares and the six men constitute the patrol. Their actions are as outlined in the text.

Demonstration No. 11—Technique of Ambush.

Equipment

6 Trench knives.
3 Hand grenades (dummy).
2 Machine guns, Cal. .30, M1917 (to simulate automatic rifles).
40 Rounds blank machine-gun ammunition.

Personnel

6 Enlisted men in enemy patrol.
18 Enlisted men in ambush group.

The placement and actions of these men are as described in the instructor's commentary.

CHAPTER 4

The Defense of Rear Areas

The subject "Defense of Rear Areas" has not as yet been fully developed in our training texts. After the so-called race to the sea on the Western Front in the last war, the concept of a battlefield was a continuous fortified zone, consisting of an intricate trench system which extended in considerable depth from the points where the hostile forces were in contact. From a tactical point of view, the areas and installations in rear of the trench system received little notice.

So it was that the civilized world was caught short when the war broke in Europe in 1939. The Germans used air power, airborne troops, and tanks as the spearheads of their attacks which overran Europe. The new forces were used both strategically and tactically. In Poland the Germans struck at mobilization centers. In France they overcame conventional World War I methods of defense to strike at command posts, communication facilities, and supply lines. They paralyzed communication and transportation and demoralized the nation. The world was amazed and horrified at the skill and efficiency with which the Germans employed these new instruments of war.

In the Allied retreat across France, it was a common occurrence to see antitank guns pointed both front and rear on a road adjacent to a command post. It seemed impossible to tell from what direction the hostile tanks would come. The enemy used units just large enough to break up organization in the rear areas and so cause the front to crumble.

Following the same idea, both Germans and Japanese continue to use infiltration by ground troops. An apt illustration comes from a recent report of operations in the Pacific theater.

In the situation described, about 30 Japanese broke through a thinly held sector and attacked a regimental command post which they caught unprepared and soon disorganized. Next, after retiring into the jungle, the same detachment attacked an artillery battery and put it out of action for some time. Then the Japanese fell upon the division command post which was not organized for defense. Some American personnel, thinking it was an air attack, jumped into slit trenches; others hid under palm leaves. Some men got behind boxes and opened fire. After disrupting the division command post, the Japanese moved away through the jungle and attacked an ammunition supply point which, like the other three installations, was unprepared for defense.

This report furnishes a striking example of the delay and damage which can be caused by even a small detachment, and of the necessity for every rear installation being constantly prepared to meet infiltration attacks.

Besides using small tank units, or infiltrating ground forces, the enemy may employ airborne forces to disrupt vital rear area installations. An excellent example of this is provided by our own tactics in the recent operations in Sicily.

THE REGIMENTAL REAR AREA

Every commander is responsible for the security of his own unit. Since the regiment, however, is a part of the division, the question may be asked, won't the division commander protect the rear areas? In a sense he will. He takes appropriate measures to protect supply points and other installations in the division rear area—the area behind the regimental rear area. Hence the higher headquarters does assist in protecting regimental rear areas, but the assistance must work both ways.

The division commander must be able to count on any of his regiments being ready to pitch in and fight as part of the division team. This they cannot do if they are disorganized and back on their heels as a result of airborne attack or

enemy infiltration. Therefore, the regimental commander must give a great deal of thought to the defense of his rear area.

The regimental commander is a busy individual, particularly if he has an attack coming up, and will usually delegate the rear area defense to the commander of the reserve battalion. Even so, he will not release control entirely. The regimental commander's order to the reserve battalion will include instructions for coordination with adjacent units and a tie-in with S-2 in the establishment of a warning system. The order will, no doubt, include provision for keeping the regimental commander informed of any action taken by the reserve battalion. The colonel must be alert to danger in the rear areas, but he cannot allow this potential danger to tie up his tactical units.

Reserve battalions are tactical units, and their primary mission remains that of counterattack. Hence the regimental commander may limit to a platoon any detachment set aside from the reserve battalion for the secondary mission of immediate action against a threat to the regimental rear area. This should not seriously reduce the strength of the reserve. He will probably order the reserve battalion commander to get regimental concurrence before putting any larger part of his own unit into action.

In case of any attempted airborne landing in force, however, all available tactical units, regardless of their previously assigned mission, resist immediately and aggressively. For approximately four hours after parachutists jump, they are particularly vulnerable. This is the time which they need to reorganize, establish control of their units, and seize a suitable area for initiation of offensive action. During this period, all tactical units, including any elements of the reserve battalion located near the point where the landing attempt is discovered, move rapidly to the threatened point and attack regardless of the magnitude of the attempted landing. Initially, there is superiority in combat power for units on the ground over those attempting to land.

The final phase of an airborne attack is reinforcement and resupply. If parachutists are the spearhead, then reinforcing troops in transport planes and gliders should follow soon after. The defense against this phase is immediate counterattack with all armored vehicles and supporting weapons. If the landed airborne force is too strong, then it becomes necessary to take up a blocking or containing position to keep the enemy from reaching supply points, communication centers, or critical terrain features.

Predicated upon the known actions of German and Japanese airborne forces, it appears not too likely that any large numbers of airborne troops will land in our regimental rear area. It seems more likely that division and corps rear areas will be the objectives for hostile attack.

There will, nonetheless, have to be troops to defend the regimental rear area in the event of attack. Where will they come from? The answer is found in the statement that within the infantry regiment about thirty-five percent of the personnel are engaged in administration or supply. This means that there are at rear area installations a great many operating personnel on which the commander may draw for the defense of those installations. These men must, in addition to their various specialized duties, be trained also as combat soldiers and capable observers to give warning of air or mechanized attack.

It is assumed that forward battalions of a regiment will protect their own areas, largely by occupying them. The so-called "regimental rear area," then, will extend from the rear of these front-line battalions back to include the supporting field artillery. The next higher commander limits the area in width by specifying the zone of action. Generally speaking, in attack a regimental rear area will cover about one square mile. In defense it will cover some two square miles, because we defend in greater depth.

In this large area we try to increase security by putting those installations, whose natures permit, in areas where there already is all-around protection; for instance, close to combat units, or where there are natural obstacles to the

landing of airborne troops, or to the movement of enemy ground forces. Our installations may keep together for mutual protection, as well as for administrative convenience.

For example, the field artillery battalions and the infantry reserve battalion may be sufficiently close to be mutually supporting in antiaircraft and antimechanized defense. Further back, the same is true of the field artillery ammunition train and the infantry regimental train bivouac. The antiaircraft and antimechanized means given to the field artillery are, essentially, for its own local protection. However, coordination with the infantry is necessary for antimechanized defense. This coordination is accomplished by the antitank company commander of the infantry regiment.

The field artillery will receive its due allotment of antitank mines. Again, coordination will most certainly be necessary, and the antitank company commander is the coordinator. He acts as antitank officer on the staff of the regimental commander. He is charged not only with the fixed defense forward of the regimental rear area but also with coordination throughout the area. He has available his own antitank guns, and, in addition, the guns of the battalion antitank platoons which assist in antimechanized defense. The antitank company commander advises on the placing of these platoons, and coordinates the use of his own guns with the battalion guns. The antitank platoon of the reserve battalion is usually available to protect the rear area directly; the remainder will protect indirectly from the forward areas. Some of the 105-mm howitzer sections of the cannon company may also be directed to supplement the antimechanized defense.

By the use of obstacles we may be able to canalize enemy tanks into the approaches covered by our antitank guns. Rear area obstacles probably will be temporary, improvised, and hastily erected to supplement natural obstacles. They will consist of roadblocks, mines, abatis, and other means which will block and also give warning.

Obstacles and heavy weapons can cover the most likely avenues of approach to the various installations, but cannot be dispersed over any considerable area. We must plan,

then, to establish area defense by using our more easily moved weapons: our grenade launchers, rocket launchers, and machine guns. A small detachment centrally placed can carry these weapons to any part of the area in two or three minutes. The present Tables of Organization and Equipment provide for 544 grenade launchers and 112 rocket launchers in the infantry regiment. About a third of them can be counted on for quick rear area defense.

Of course if these weapons, formidable against vulnerable airborne troops and scattered tanks, are to move to any part of the area in the minimum time, there must be previous planning. In the first place the detachment set aside for immediate action must be small. It is the responsibility of the reserve battalion commander to decide just how much force he needs. He will look at the terrain, calculate time-distance factors, and make an estimate of what the enemy can do in this particular area. Normally he will keep the detachment small so as not to disperse his force until necessary. A sample force would be a platoon of riflemen, a section of heavy machine guns, and two squads of the battalion antitank platoon.

In the second place, the detachment must be motorized. The trucks will necessarily be organic trucks. Let us say that the reserve battalion commander needs ten quarter-tons with trailers to move his detachment. He logically will take one from each rifle company of the reserve battalion, with a light machine gun mounted thereon to provide additional fire power. The remainder of the vehicles will come from the heavy weapons company and from the battalion headquarters company. These trucks are taken from their normal missions and used to haul men. Normal loads should be removed. Every man of the detachment should know where his truck is and his assigned seat on the truck. Then, if the detachment is needed, the trucks can be moved out in the minimum time. If the detachment is not needed, normal loads may be restored to the trucks in a few minutes should the battalion be committed.

The third essential for this detachment is that it knows where to go; in other words, the point of the attack. To

know this, there must be an adequate warning system. Where does it come from? The antitank company commander has an SCR-284 in the division antiair-antimechanized warning system. He is in radio contact with each of his platoons by SCR-300. Observers at these platoons are thus linked through him to the division or corps warning net, which provides contact with adjacent regiments of the division through their antitank company commanders, and also with the division's long-distance reconnaissance units. Upon receipt of warning from the higher unit warning net, from his platoon observers, or from antitank outposts especially placed by him, the antitank company commander or his representative can utilize the regimental command net or the regimental special purpose net for relaying such warning to the battalions and trains which are threatened.

This system, limiting the use of general alarm and the burden which general alarm imposes on communications, must of course be coordinated with the communication officer and S-2. Each antitank company commander will keep his regimental S-2 informed of any enemy action discovered by the warning net, and information of the enemy, as contrasted to alarm, will continue to flow through S-2 and G-2 channels. S-2 in addition will have the mission of checking the posting of local air-antitank guards by all units and installations. Such guards will give local alarm by audible signal.

Also operating under control of the regimental S-2 is the intelligence and reconnaissance platoon. This platoon has only 24 men mounted in 7 quarter-ton trucks. After contact with the enemy has been gained, that part of this platoon not occupied with regimental missions may be used for rear area motor patrolling. If the regimental commander allots 3 of these vehicles and their personnel for this task they will be adequate. If he does not, then transportation and personnel for the patrolling must be drawn from the reserve battalion. Whether they are from the intelligence and reconnaissance platoon or from the reserve battalion, patrols must follow carefully coordinated routes to survey unguarded areas. Because the patrols must operate day and night,

frequent relief of men and vehicles will be necessary. The length of the individual circuit is about 4 miles in the largest regimental rear area.

In addition to these motor patrols there will be need for one or two air-antitank guards. They may be detailed from the antitank platoon of the reserve battalion and should be posted by the antitank company commander to augment the observation afforded by the air-antitank guards posted by his platoons. Normally, these guards are assigned the additional mission of antiaircraft observation, but only to supplement local warning systems.

In a regimental rear area we are limited by available communication facilities to one or two free outposts of this type. They will communicate by the organic radios of the reserve battalion. It is probable that in a rear area of one or two square miles there will not be more than one or two good points for antitank observation which are not occupied by units within the rear area. If a larger rear area must be defended or if our one or two square miles is particularly difficult to defend, the air-antitank guards may be increased, and then the regimental S-3 must be called on to provide additional communication facilities. These may consist of some of the eight SCR-300 utility sets from the regimental command post.

Ordinarily, the use of the telegraph, field telephones, or sound-powered telephones is inadvisable. The reserve commander will need these when his unit moves to attack or counterattack, and having to take up wire would waste precious time.

This is passive defense so far as warning systems go, and it is secondary defense at best. But these defensive measures must not be neglected by the regimental commander, nor by the reserve battalion commander, if the duty has been delegated to him.

DEFENSE OF A COMMAND POST

In considering the general defense of a regimental rear area we are concerned with measures designed to detect, and then destroy, repel, or contain, any enemy forces which

enter the area. In this portion of our article we shall deal with the question of defending one specific and vital installation—the command post.

The command post of a unit is its nerve center, and is very likely to be the object of enemy attack by aircraft, airborne troops, tanks, or infiltrating ground forces. Serious consequences can result if these forces succeed in disrupting even for a short time the operation of the command post.

Therefore, the determining factor in selecting the exact location for a command post is security, and not convenience or the comfort of its personnel. For this reason the officer responsible for command post protection (the S-1 in the battalion and the Headquarters Commandant in the regiment) should be given considerable voice in selecting the exact location. Ordinarily, S-3 will have recommended to the commanding officer the general location for new command posts.

Command posts of units larger than a division may be in a town or village, but the CP's of smaller units will normally be in a field location. In the selection of the command post site on the ground there are certain constant factors to be considered. For instance, in an attack situation, the command post will be placed well forward to facilitate control. It will be centrally located within the command, if practicable. In any event, it will be close to a road or other natural line of drift from front to rear, near some easily recognized topographical feature, and close to a good observation point.

With these factors taken into consideration, it will be advisable, for security reasons, to place the command post where it is not likely to be shelled or bombed, where it is defiladed from small-arms fire, and where the terrain affords cover and concealment for personnel and vehicles. We may provide additional security, where possible, by placing the command post near one of our combat units, probably a reserve unit.

When the location is established, S-1 or the Headquarters Commandant is faced with a multitude of details in planning, coordinating and supervising the new defense set-up.

First he attends to such matters as the interior arrangement of the operating sections of the command post, including the truck park; the dispersion of operating and visiting personnel; camouflage with particular reference to the CP entrance and the truck park; the posting of guides to enforce traffic regulations; the organization of operating personnel into improvised combat units; and finally, construction of individual foxholes for all personnel, including casuals. This latter item must be given emphasis and be strictly observed. It is extremely important that each man have a foxhole of sufficient depth to protect him from being crushed by a tank passing overhead.

While the above details are being accomplished, S-1 or the Headquarters Commandant makes a careful study of the terrain with a view to preparing a plan for both day and night defense. In this plan he must consider positions for antiaircraft and antitank outposts within range of standard audible signals. He must choose assembly points for the improvised combat units he has formed, and locate firing positions for all-around defense of the area, routes for foot patrols, and the sites of listening posts for night use. He determines interior guard requirements and the nature and location of obstacles.

He is not finished when he has set up this close-in defense. He must supplement it by coordinating his antimechanized defense with the antitank company commander, by coordinating the use of personnel and weapons with command post personnel of the supporting field artillery, and by an understanding with combat troops in the immediate vicinity regarding protection of the CP by fire from these units.

The execution of many of these details should become a matter of standing operating procedure. Interior arrangement of the command post, camouflage discipline, traffic regulations, construction priorities, improvisation of combat units, local sound warning signals, and interior guard duty can all be made a matter of SOP. As with all other matters covered in SOP, constant check must be made to insure that carelessness does not develop in any detail.

There are about 100 men in the infantry regimental command post who may be used to form improvised combat units. This number, however, includes the intelligence and reconnaissance platoon and about 10 casuals. Men from these two sources may not always be available. In a battalion command post there are about 50 men available for emergency duty in protecting the CP. It is not expected that all designated personnel will be present at any one time. However, some personnel from other units such as the cannon company, the antitank company, the reserve unit, and the supporting field artillery will be present at the command post at any given time. Such personnel can and should be used in emergencies.

This personnel should be divided into two groups. One group should be composed of key men who, during an attack on the command post, continue to execute their normal duties as long as practicable. Included in this group are the commanding officer, the unit staff (less S-1), and sufficient personnel to keep the communications operating. The second group should be organized as a mobile force ready to move out under the Headquarters Commandant or battalion S-1 to man the perimeter defenses or otherwise to resist attack. When patrols, guides, and guards—including the truck-park guard—are designated, there will be sufficient personnel remaining for about one platoon in a battalion command post, or two platoons in a regimental command post. The appointed commander will divide this group into squads, appoint leaders, and see that the chain of command is accurately established and understood. A sample breakdown for a battalion is included in the illustrative problem which follows.

What antitank weapons are available to these groups? Specifically, there are ten grenade launchers carried by truck drivers at the regimental command post, and five at the battalion. There are rocket launchers in both the regimental and battalion headquarters companies. These launchers are normally carried on various headquarters company

vehicles. They should be removed, personnel to operate them should be designated, and a definite location in the defense of the command post assigned them.

In certain situations the regimental commander may authorize the use of antitank guns for the protection of the regimental command post. However, this is not to be expected as normal procedure. Guns of the antitank company not assigned to supporting missions with battalions are usually retained under regimental control, and while they ordinarily will be located to facilitate protection of the regimental command post, they are not primarily charged with this mission.

Antitank mines in sufficient number to block likely enemy tank approaches to the regimental command post will frequently be issued from the antitank mine platoon. Mines may also be issued to battalions for this purpose.

A number of the rocket launchers assigned to the headquarters and service battery of the supporting field artillery are used to afford antimechanized protection to its command post, truck park, and fire direction center. When the command posts of the supporting field artillery battalion and the infantry regiment are located together, as will normally be the case, coordination of all available means is necessary for effective antimechanized defense. This coordination is accomplished by the antitank company commander in his capacity as antitank officer on the staff of the infantry regimental commander.

As for antiaircraft weapons, one .50 caliber machine gun will usually be at the truck park in the vicinity of each battalion command post and one at the truck park near the regimental command post. These guns constitute the specific antiaircraft protection of the command posts. It is unnecessary here to discuss the individual weapons—the carbines, rifles, pistols, and hand grenades—which will be available. It should be an inflexible rule in the command post that all rifles not equipped with the grenade launcher will have bayonets fixed at all times.

A warning system to alert the command post against air or mechanized attack is an integral part of the defense plan. As it pertains to the command post proper, the purpose of the warning system is to enable all personnel to reach available cover promptly and to ready their weapons. The major part of such warning will be provided by local air-antitank guards, sufficiently close to the elements of the command post to use a standard audible signal which can be heard by all personnel.

For warning against air attack, reliance will be placed entirely on these guards. Air-antitank guards whose primary duty is warning of the approach of hostile aircraft will be located on high ground, if it is available, where they are afforded all-around observation. Upon alarm, the members of the command post are alerted; when so ordered, controlled fire is directed on the attacking planes.

It was recently the practice of some units in the European theater to equip antiaircraft observers with a clip of straight tracer ammunition. The men designated were expert riflemen. Their fire on an attacking plane served as an effective signal, visible and audible, to all personnel in the vicinity.

For warning against hostile mechanized attack, partial reliance may be placed on warning obtained and disseminated by the antitank company commander. This officer is in contact with adjacent and higher units through his observers, his company radio net, and through the division warning net. To supplement this warning by communications systems, which are subject to failure, one or more air-antitank guards will be necessary. A good location from which to obtain warning of tank attack will be with the guide at the entrance to the command post. If not stationed at the entrance, the guard should cover the most probable tank approach.

The alarm sounded by these local air-antitank guards is usually the standard audible signal. The S-1 of a battalion command post or the headquarters commandant of a regimental command post may utilize any audible signal—voice, klaxon, siren, vehicle horn, whistle, bugle, or shots—provided there is opportunity for sufficient practice alerts to

insure that each member of the command post knows what the signal means and the action he is to take. Sound-powered telephones are not to be counted on for first warning, nor are visual signals. Neither is well suited for initial alarm in a close-in warning system, though they may be used to supplement this alarm.

In addition to the fixed air-antitank guards, foot patrols of two men may be used to guard against hostile infiltrations, patrols, and snipers. Motor patrols, unless improvised to meet a special need, are not available for employment in the close-in command post warning system. Any vehicles which are available will be better used to patrol dangerous areas within the regimental rear area. Such patrolling should be under the supervision of the antitank officer who coordinates with S-2.

Tactical principles applicable to defense of any small area apply in full force to the defense of a command post against daylight attack. A command post is, in the last analysis, a combat group whose garrison is approximately one to two rifle platoons. One platoon can be improvised from administrative personnel of a battalion; probably two from personnel at a regimental command post. The employment of additional combat troops must not be anticipated in the usual case. Likewise, it is poor practice to have a standing operating procedure which depletes the available active force, by assigning platoons from the reserve for command post defense. Operating, then, with command post personnel only, the key personnel who must continue their normal duties as long as possible, comprise the inner defense group. When the alarm signifying attack is sounded, in daytime, and the command post is alerted for a ground infiltration, these men look to their weapons and ready themselves to occupy the foxholes which they have previously constructed in the immediate vicinity of their work locations. They do not occupy those foxholes until they are individually endangered by the attack.

The other group, those men assigned to the improvised platoon, do likewise except that they watch S-1 for the signal to assemble at a pre-designated spot, or squad assembly

point. If such signal is given, they assemble, and upon order, move out to resist. The Headquarters Commandant or the battalion S-1 may order squads to man one or more of the previously selected perimeter defense positions. The chances are that he initially will retain a reserve at one of the assembly points to guard against further surprise.

Since his men are on foot, they will have to walk or run to the prepared positions. If they are to arrive in time and in a "fit to fight" condition, the positions should be located within 400 yards of the command post proper. It is probable that in a mobile situation these perimeter positions will be no more than points which offer a good field of fire, or which cover vulnerable approaches. They may be supplemented by such cover as may be hastily constructed to give additional protection to individual riflemen. It is only in the event of a hostile infiltration by foot troops that these perimeter defense positions are used.

Men at the truck park do not go to these perimeter positions. They are not assigned to the improvised squads, but constitute a truck park guard. They remain in position, and except for men required to operate the .50 caliber machine gun, occupy foxholes. Guards, patrols, and guides remain in position and resist attack.

In the event of hostile artillery fire or attack by high-altitude bombardment, S-1 in alerting the command post, shouts "Foxholes!" All personnel occupy foxholes immediately. The minimum interruption to communications is insured by the use of foxholes in which facilities for the operation of radios and telephones have been prepared.

In the event of tank attack, similar action is taken. Personnel use individual weapons in firing at tanks and accompanying foot troops. Doors and turrets, if open, also vision slits and periscopes, offer favorable targets. If tanks succeed in approaching close enough, incendiary grenades, antitank bombs, and smoke grenades may be used.

With a view to night defense, S-1 will have arranged the operating sections of the command post in a somewhat circular formation. Here we have an old Indian fighting

technique, centuries old: the circle for defense. Immediately adjacent to his working location, each individual should construct a foxhole. Upon the sounding of an alert, all persons immediately occupy foxholes and await attack. This includes men assigned to the improvised combat platoons. Until the alert is terminated by an officer specifically designated for that purpose, any noise or movement beyond the perimeter of the command post, any man outside of a foxhole within the command post, is fired upon.

That is a somewhat hazardous method of defense, but it is absolutely necessary. Recent combat experience has shown that a patrol infiltrating at night, intent on knocking out a command post, will take no more than six minutes to get in, do its damage, and withdraw. Enemy infiltration detachments which have penetrated our areas cannot afford to remain there long. Any active defense against them must be quick and sure. An officer must be on duty at all times to alert the command in case of attack or alarm and to terminate the alert.

Precautions must be taken that the enemy does not become familiar with all-clear signals, or with countersigns. This last matter is not to be overlooked in the Pacific Theater because the Japs are very patient observers. They have been known to remain in hiding in the vicinity of command posts for many hours until thoroughly familiar with even the habits and the names of the operating personnel.

Training of command personnel in their combat duties is especially important. Individual training in scouting and patrolling, in marksmanship, and in bayonet technique, should be stressed. Discipline must be maintained, for in no other way can men whose duties are of a technical nature be relied upon to conduct themselves as combat soldiers in emergencies.

GENERAL CLOSE-IN DEFENSE

It should be apparent that the principles, discussed above as vital to the defense of a command post, apply almost in their entirety to the defense of any other major rear area installation.

We can note, for instance, that the responsibility for close-in defense of the installation devolves upon the senior officer present. The senior officer may, of course, delegate authority, but he must see that the operating or "resident" personnel are organized into combat groups for the protection of the installation. He also looks after the posting of suitable air-antitank guards. Consider briefly the regimental train bivouac. In the usual case, it is located in a division rear area, and the division commander is responsible for its protection, but the division commander can not look after the close-in defense of installations within the rear area except to see that they are coordinated with one another.

So we come down a notch to the regimental staff. The regimental S-4 is responsible for the preparation of the plan for the defense of the regimental train bivouac. He coordinates this plan with the defense plan set up by the division, and with the defenses of other units within the same rear area. When this is done and S-4's defense plan is approved by the regimental commander, it is transmitted to the service company commander for execution. This is because S-4 will be away from the train bivouac area much of the time. The service company commander then has the final duty of selecting the exact location of the train bivouac, establishing it and operating it within the limitations set for him by S-4.

In an attack situation, this problem of location may be easily solved. The trains may simply halt off the road, well dispersed and under cover, and that spot becomes the regimental train bivouac. The service company commander, who doubles as bivouac commander, has standing operating procedure for the immediate improvement of such bivouacs, however temporary. For example, immediate action is taken by all personnel to improve existing concealment by camouflage, and to provide individual cover. Even back here "cover" will largely mean foxholes.

In defense, the location, size, and interior arrangement of the train bivouac become increasingly important, both from an administrative and a tactical point of view. More care must be taken in the selection of a location. The area should have as much natural defensive strength as possible,

which means, first and foremost, cover and concealment. The bivouac should be beyond range of light artillery fire. Normally it will be five to ten miles in rear of the main line of resistance. Considering this last factor, it is apparent that the train bivouac has additional security against tanks, and additional security against infiltrating ground forces. For instance, we may presume that if tanks hit the main line of resistance, the train bivouac will have some warning before the tanks have time to break through, or fan out in the rear area. Then, if the elements of a bivouac are carefully concealed off a road and the entrance is carefully camouflaged, the chances are that any tanks ranging through a division rear area will pass by unknowingly. Dispersion of men and vehicles will reduce losses to a minimum even if tanks do succeed in penetrating the area.

The train bivouac, however, is even more likely to be the objective of an airborne attack than is the command post. Train bivouac personnel should resist immediately and aggressively any attempted landing in their vicinity. The bivouac commander will find that his requests for additional combat troops for bivouac protection will not be favorably considered in the usual case. He must take the personnel from the kitchen and baggage train, the ammunition train, the maintenance section, the bivouac headquarters, and, possibly the regimental personnel section, and organize them into combat groups just as the S-1 must do for the command post. When he has done this, he will have a basis for defense which will be adequate for all but the most exceptional circumstances.

It is only by detailed planning and repeated maneuver rehearsal that units will provide adequate rear area protection for operations to come, and then only if they realize that adequate defense of rear areas is a very necessary key to successful operations.

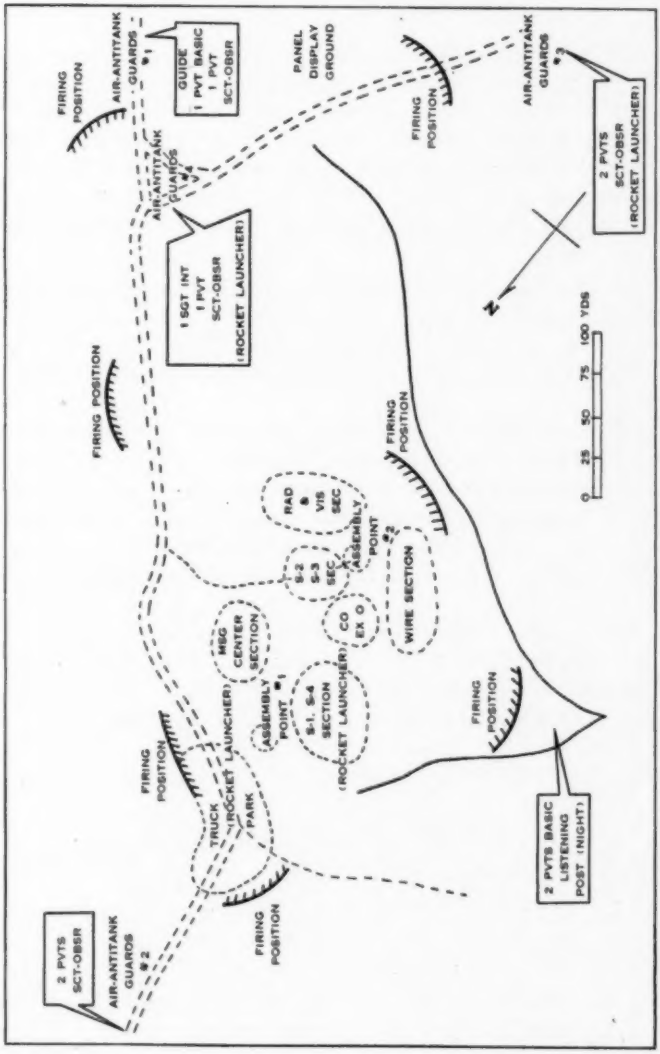


FIGURE 9.—Schematic diagram of command post, 1st Battalion, 1st Infantry, at 1200, 30 June, showing general arrangement and plan for close-in defense.

ILLUSTRATIVE PROBLEM

Situation: The 1st Battalion, 1st Infantry, an interior battalion, is occupying a front-line defense area to the northeast. The battalion area is being organized in depth for all-around defense. Hostile patrols are known to be active. The enemy habitually employs infiltration tactics to advance small groups into rear areas. He is strong in mechanized forces and employs them aggressively. Hostile aircraft are very active.

At 1200, 30 June, the battalion command post is organized as indicated in figure 9. The command post is in a wooded location, defiladed from small-arms fire by a low ridge which generally follows the trail northeast of the command post.

First requirement: You are S-1. Based on the organization of a battalion command post as shown in figure 10, improvise combat groups from the command post personnel to include a truck guard, personnel to act as air-antitank guards, an inner defense group, and an improvised platoon consisting of a platoon headquarters and two or three squads.

A solution to first requirement:

TRUCK GUARD	AIR-ANTITANK GUARDS
Sgt, Mtr, Sqd leader	S Sgt, Int
Tec 4, Mech, Automobile, 2d-in-Comd	6 Pvts, Scts Obsrs
2 Pvts, Trk drivers, (S-1 Sec)	

INNER DEFENSE GROUP

Bn CO	S Sgt, Rad & Vis Chief
Ex O	S Sgt, Com Chief
S-2	Sgt, Msg Cen Chief
S-3	2 Tec 4, Opr, Rad
S-4	2 Tec 5, Opr, Rad
1st Lt, Mtr O	2 Pvts, Msg Cen
1st Lt, Com O	Pvt, Tp Sb
T Sgt, Sgt Maj	Odly (To report to Bn CO)
S Sgt, Opns	

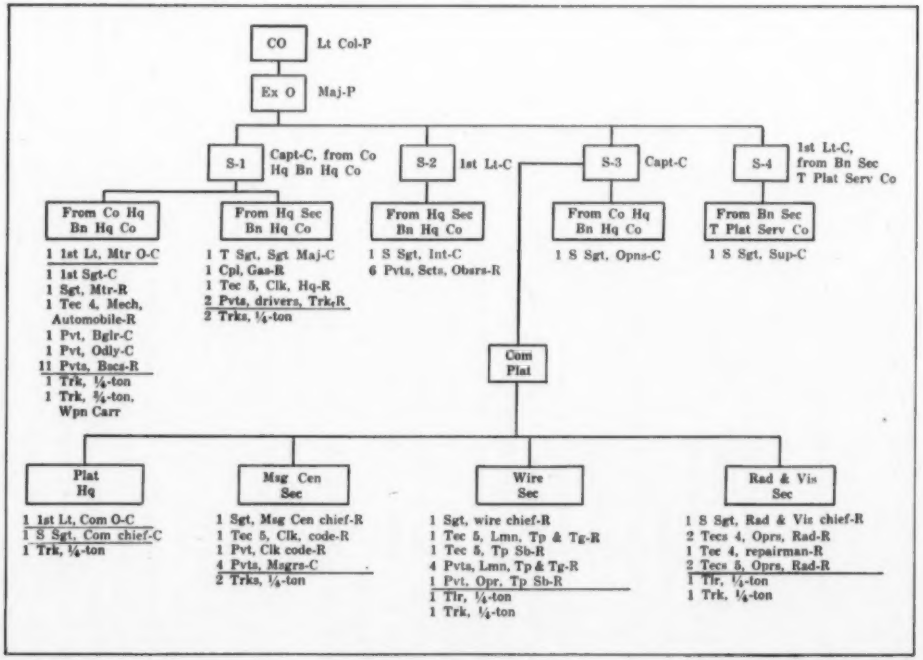


FIGURE 10.—Organization of a command post, infantry battalion, based on T/O and E of 26 February 1944.

IMPROVISED PLATOON

PLATOON HEADQUARTERS

S-1, Plat leader
1st Sgt, 2d-in-Comd
Sup Sgt, Plat Guide
Bugler

1st SQUAD

Gas Cpl, Sqd leader
Tec 5, Clk (S-1 Sec), 2d-in-Comd
11 Pvts, Basics

2d SQUAD

Tec 4, repairman, Sqd leader
Tec 5, Clk, (Msg Cen Sec), 2d-in-Comd
Tec 5, Lmn
4 Pvts, Lmn
Tec 5, Tp Sb
Pvt, Clk
2 Pvts, Messengers

3d SQUAD

Sgt, Wire Chief, Sqd leader
(Any casuals present in the CP at the time of the alert.)

Discussion: Because of the heavy demand for air-antitank guards in this particular command post, basic privates will be used to supplement designated personnel in manning one air-antitank post and the listening post. Note the emphasis on personnel to maintain communications in the inner defense group. Note also that the 3d squad consists of any casuals who might be present. Thus, provision is made to use all available manpower.

Situation, continued: At 0800, 1 July, S-1 hears three shots from the direction of air-antitank guard number 2. The warning is repeated from the truck park, and the motor sergeant shouts, "Hostile patrol!" pointing to the northeast beyond the ridge.

Second requirement: Actions and orders of S-1.

A solution to second requirement: S-1 alerts the command post by three blasts on his whistle. He signals squads to assemble at assembly points, and runs to a point near the crest of the ridge where he can determine the cause of the alarm. He has the squad leader of the first squad place his squad in the firing position on the ridge near the truck park, and prepare to deliver fire on the approaching enemy.

Discussion: S-1 speeds the launching of his active defense by having squads assemble while he is moving up to check his needs for that defense. He is interested in preparing to place a volume of fire on the patrol to keep it from damaging the command post or disturbing the operation of key personnel. He retains his second squad in readiness at its assembly point as a reserve in case of a secondary attack or further need.

Situation, continued: The hostile patrol disappears into the woods to the north.

Third requirement: Actions and orders of S-1.

A solution to third requirement: S-1 signals "all clear," by blowing a long, continuous blast on his whistle, and has the squad leader of the 1st squad take his squad back into the command post to resume administrative duties. S-1 notifies front-line companies of the presence of the enemy patrol.

Discussion: S-1 is charged with the immediate close-in defense of the command post as a vital installation. The pursuit, defeat, and destruction of an enemy patrol which attacks the command post is charged to other troops of the battalion. A combat patrol from the reserve company might be assigned this mission.

Situation, continued: At 1200, 1 July, S-1 hears three rifle shots from air-antitank guard number 1, and the rumble of approaching tanks.

Fourth requirement: Actions and orders of S-1.

A solution to fourth requirement: S-1 alerts the command post, and shouts, "Tanks! Foxholes!" He occupies his foxhole.

Discussion: Practically the only time when the combat groups will be used to man the perimeter defense positions will be in a situation similar to that of Requirement 2, a ground infiltration in the daytime. In the event of attack by tanks, by aerial or artillery bombardment, or by an infiltrating force at night, foxholes will provide the best defensive position. Small groups of hostile tanks can be effectively fought from foxholes.

CHAPTER 5

Changes Wrought by Time

It has been said that decentralization of control is one of the outstanding characteristics of modern warfare when contrasted with the methods used in previous conflicts. Increased fire power of the enemy has made this necessary, and our own increased fire power and improved means of communication have made it possible.

The company disposition indicated in figure 11 is described in official training literature, long since obsolete, but still in general use at the beginning of the last World War. Paragraphs 432 and 433 of Infantry Drill Regulations, 1911 with corrections to November, 1913, stated:

> 432. When it is intended to fight to a decision, fire superiority is essential. To gain this, two things are necessary: A heavy fire and a fire well directed and controlled. Both of these are best obtained when the firing line is as dense as practicable, while leaving the men room for free use of their rifles.
>
> If the men are too widely separated, direction and control are very difficult, often impossible, and the density of fire is slight in proportion to the front occupied.
>
> 433. In an attack or stubborn defense the firing line should have a density of one man per yard of front occupied.
>
> Where the tactical situation demands the holding of a line too long to be occupied at this density, it is generally better to deploy companies or platoons at one man per yard, leaving gaps in the line between them, than to distribute the men uniformly at increased intervals.

Paragraph 387, the same publication, stated, concerning communication and control:

> 387. Connection between the firing line and the major (battalion commander) or colonel (regimental commander) is practically limited to the prescribed flag, arm, and bugle signals. Other means can only be supplemental. Company musicians carry company flags and are practiced in signaling.

Hence the necessity for visual control as indicated in figure 11.

In contrast to these methods, current official doctrine concerning battle formations is as follows:

FM 23-15, paragraph 200*b* and FM 23-5, paragraph 155*b*.

> In battle, a unit is not deployed with individuals abreast and at regular intervals apart. The selection of individual and group positions is governed by the field of fire, cover or concealment while firing, covered route(s) of approach to those positions, fire control, and nature of target.

The necessity for dispersion and proper use of cover and concealment during combat prevent a battalion or company commander or, except when attacking on very open terrain, even a platoon leader from maintaining visual contact with more than a small part of his command. Squad leaders and assistant squad leaders, therefore, are key men in maintaining control of the unit. They alone may expect during combat to have frequent visual contact with their command. They must possess a high degree of leadership, initiative, and aggressiveness.

Control, fire power, and maneuver are fundamental characteristics of any successful military operation, regardless of the size of the units involved. In accordance with FM 7-10, 18 March, 1944, these characteristics are accomplished in rifle platoons and squads, as follows:

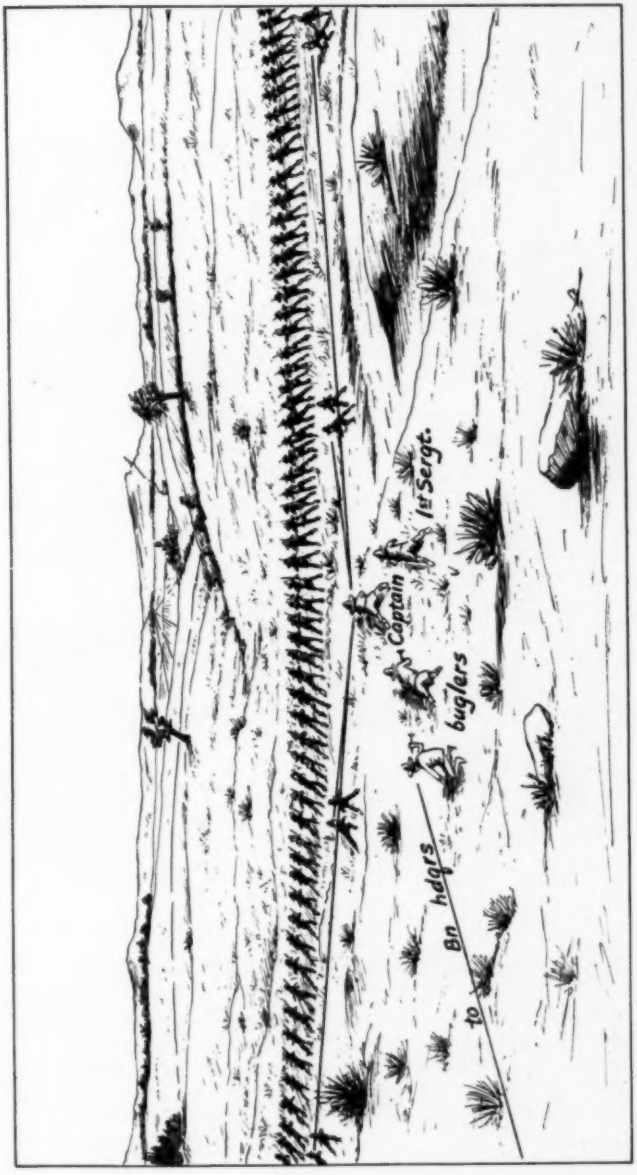


FIGURE 11

FIGURE 12.

FM-10, paragraph 116*b* (1). (See figure 12.)

The platoon leader follows his attacking echelon closely. He goes wherever he can best observe developments and influence the action of the platoon.

FIGURE 13.

FM 7-10, paragraph 116*b* (2) (*a*). (See figure 13.)

When the platoon comes under effective small-arms fire, further advance is usually by fire and maneuver. The enemy is pinned to the ground by frontal (and flanking) fire, under cover of which other elements of the platoon maneuver forward, using all available cover to protect themselves against hostile fire.

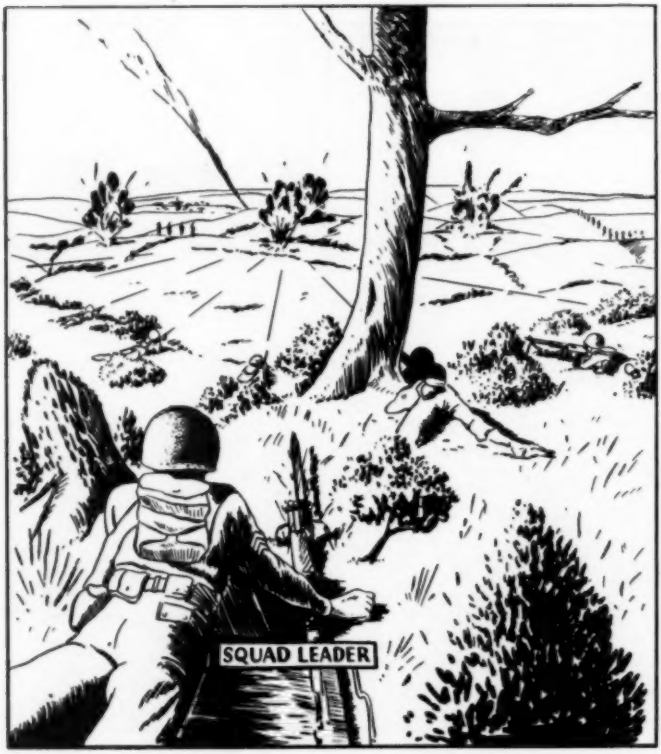


FIGURE 14.

FM 7-10, paragraph 153*c* (1). (See figure 14.)

. . . The squad leader takes a position from which he can best control his men and observe the effect of their fire. In selecting his position, he considers the necessity of maintaining contact with the platoon leader.

FIGURE 15.

FM 7-10, paragraph 153*c* (8). (See figure 15.)

He (the squad leader) prevents the members of his squad from becoming so widely separated that he loses control.

FIGURE 16.

FM 7-10, paragraph 153*b*. (See figure 16.)

... By ... (the) combination of fire and maneuver, the squad advances close enough to capture the hostile position by assault. ... When the squad leader decides to advance with certain individuals, he turns command of the remaining men over to the assistant squad leader. The assistant squad leader causes the remaining men to advance on his orders.

FIGURE 17.

FM 7-10, paragraph 153*c* (5). (See figure 17.)

He (the squad leader) seeks a position for his automatic rifleman from which he can deliver effective fire on any target holding up all or part of the squad. Where practicable, this position should permit the automatic rifle to fire across the entire squad front. The selected position will usually be one with the best field of fire, although tactical or terrain considerations may require that fields of fire be given secondary consideration.

FIGURE 18.

FM 7-10, paragraph 153*b* (1). (See figure 18.)

(Under cover of fire of part of the squad, or of the automatic rifle team) other members of the squad move forward to take firing positions closer to the enemy, and, by their fire, cover the forward movement of the rearward members. By this combination of fire and maneuver the squad advances close enough to capture the hostile position by assault.

CHAPTER 6

Logistics—Supply Rifle Company, Heavy Weapons Company, And Battalion In Attack

Map Problem

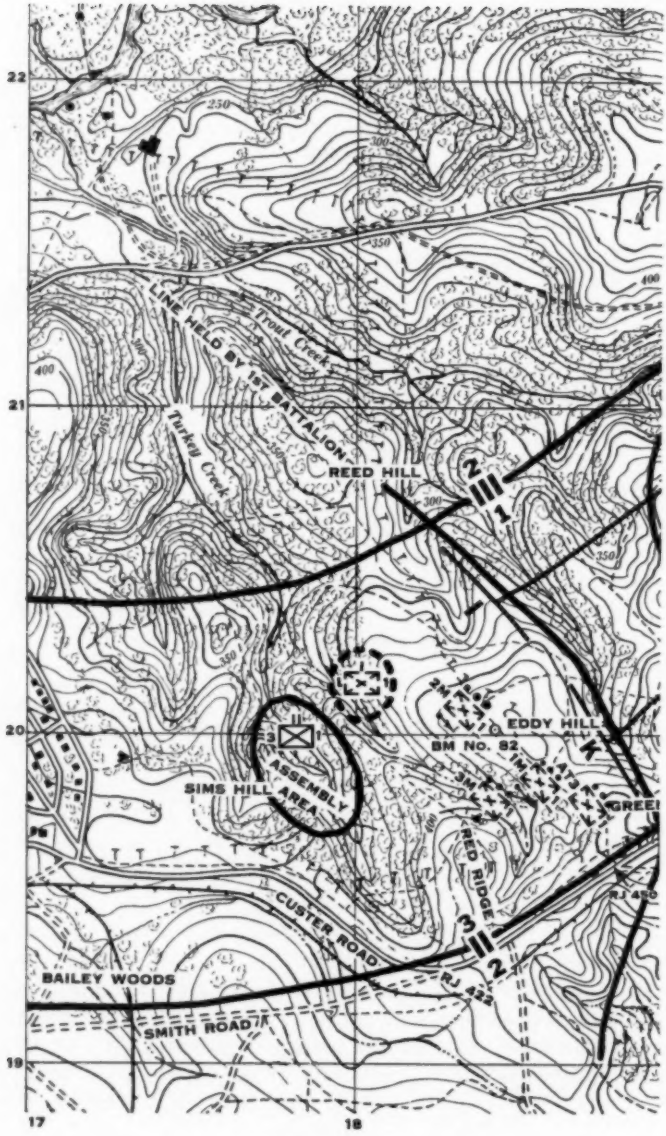
1. SITUATION.—*a.* (1) *References.*—FM 7-10; FM 7-15; FM 7-20; and FM 7-30.

(2) *Purpose.*—To illustrate the operation of the battalion supply system, some of the responsibilities of the company and platoon commanders of rifle and heavy weapons companies, and the means available to supply these units in an offensive situation.

(3) *Maps.*—Maps A, B, and C. (Figures 19, 20, and 21, respectively.)

b. On the morning 11 March, the 1st Infantry, part of a larger force, advanced east along Smith Road and Custer Road, with the mission of seizing the high ground * * * (about 2 miles northeast of the area shown on the map). By 0945, the 1st Battalion, 1st Infantry, the advance guard of the regiment, moving on a broad front, was stopped along the line Green Hill—Eddy Hill—Reed Hill by enemy forces occupying Thomas Hill and Clark Hill.

c. The 3d Battalion moved northeast through Bailey Woods and arrived at its assembly area east of Sims Hill at 1030. Company transport and the battalion ammunition train have been released to battalion control and are moving, by bounds, in rear of the regiment. Lieutenant Colonel 3d Battalion has been directed to report to the regimental commander at BM No. 82 (18.4-20.0) at 1030 to receive an


22
21
20
19
17
18
LINE HELD BY 1ST BATTALION
Trout Creek
Turkey Creek
REED HILL
EDDY HILL
BM No. 82
SIMS HILL AREA
ASSEMBLY AREA
RED RIDGE
CUSTER ROAD
BAILEY WOODS
SMITH ROAD
RJ 425
RJ 450
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300
350
400

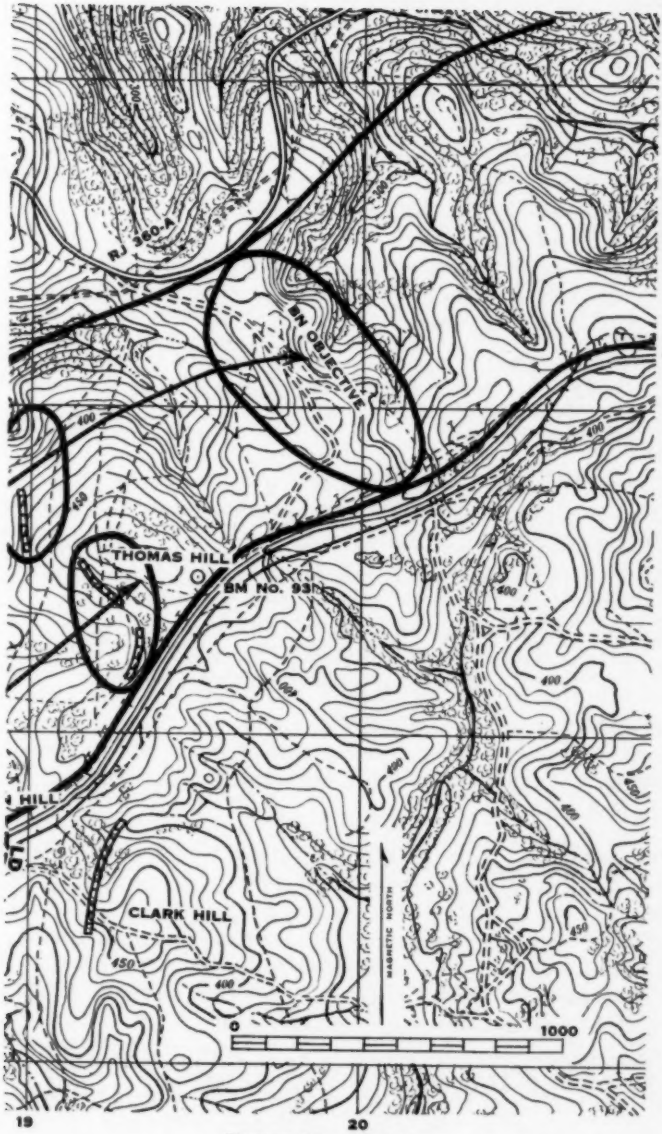


FIGURE 19.—Map A.

attack order. Company commanders were directed to report to the battalion commander on the northwest slope of Eddy Hill (18.5-20.0) at 1110.

2. FIRST REQUIREMENT.—*a.* As S-4, 3d Battalion, 1st Infantry, state your recommendations to the battalion commander prior to his departure for BM No. 82, pertaining to the following:

(1) When and where should company transport and ammunition train vehicles be released to subordinate units?

(2) When and where should extra ammunition be issued?

b. As Captain Company K, state your plan for:

(1) Reception and disposition of company transport and ammunition train truck carrying ammunition for your company.

(2) Issue of extra ammunition to your company.

c. What officer should be placed in charge of the company transport and the battalion ammunition train during their movement to the battalion release point?

d. Initially, how much ammunition is carried by:

(1) Individuals armed with carbines?

(2) Individuals armed with M1 rifles?

(3) Individuals armed with M1903A4 rifles?

(4) Automatic rifle teams?

e. Initially, how much ammunition is carried on the battalion ammunition train for each of the following weapons in rifle platoons:

(1) Automatic rifle

(2) Rifle, M1

(3) Rifle, M1903A4

(4) Carbine

3. A SOLUTION TO FIRST REQUIREMENT.—*a.* (1) To release company transport and ammunition train vehicles to subordinate units on arrival of the transportation at the trail junction (17.7-19.7) approximately 150 yards southwest of the battalion assembly area.

(2) To issue extra ammunition without delay in the assembly area.

b. (1) To send a guide, at once, to the battalion point of release to conduct the company transport and ammunition train truck to the company assembly area. To return the ammunition train truck to battalion control after extra ammunition has been issued. To release the company transport to the weapons platoon upon arrival of the vehicles in the company assembly area.

(2) To issue extra ammunition to each rifle platoon without delay.

c. The battalion motor officer.

d. (1) Carbine—60 rounds.
(2) Rifle, M1—48 rounds.
(3) Rifle, M1903A4—40 rounds.
(4) Automatic rifle team—380 rounds.

e. (1) 360 rounds (6 bandoleers).
(2) 96 rounds (2 bandoleers).
(3) 120 rounds (2 bandoleers).
(4) None.

4. DISCUSSION OF FIRST REQUIREMENT.—*a.* (1) Ammunition train vehicles and company weapon carriers are released at a well-defined, easily recognizable terrain feature near the divergence of routes to the companies. The trail junction selected is satisfactory. The vehicles should be released to companies early enough to allow sufficient time for the initial issue of ammunition (prior to the time the companies are to leave the assembly area for the line of departure).

(2) Extra ammunition is usually issued in the battalion assembly area. The battalion assembly area is usually the most forward covered position in rear of the line of departure. In this instance the time of attack is not yet known. In order that the companies may be prepared to move out promptly, extra ammunition should be issued without delay.

b. (1) Company commanders will provide guides to conduct the vehicles from the battalion point of release to the company assembly areas. As soon as the companies arrive

in their assembly areas, guides should be instructed as to the location and route to the battalion point of release and dispatched thereto.

(2) Extra rifle and automatic rifle ammunition should be issued immediately upon arrival of the ammunition train trucks. Since each ammunition train truck must carry ammunition for more than one company, ammunition should be unloaded from the trucks and placed on the ground in company or platoon piles.

c. The battalion motor officer frequently will be placed in command of the battalion ammunition train in addition to the company transport when grouped under battalion control.

d. The amounts of ammunition listed in the solution are based on data prepared by The Infantry School and may change from time to time in accordance with instructions issued by the War Department. They will vary in different Theaters of Operations.

5. SITUATION, CONTINUED.—The recommendations of S-4, 3d Battalion, regarding the release of vehicles and the issue of extra ammunition were approved. S-4 was with Lieutenant Colonel 3d Battalion at BM No. 82 and heard the regimental attack order. Following are excerpts from his notes:

a. The regimental ammunition supply point is located on Smith Road about 1½ miles west of the 3d Battalion assembly area. (Not on portion of map shown.)

b. Regimental route of advance of ammunition: Smith Road—Custer Road.

c. All roads and trails shown on the map are passable for motor vehicles.

d. Time of attack—1230.

6. SECOND REQUIREMENT.—*a.* As S-4, 3d Battalion, state your recommendations to the battalion commander pertaining to the following administrative matters to be included in the battalion attack order:

(1) Location of the battalion ammunition supply point.

(2) Battalion route of advance of ammunition.

(3) Disposition of company transport and ammunition train vehicles.

(4) Location of battalion aid station.

b. What officer is charged with establishing and operating the battalion ammunition supply point? What personnel may be employed in operating the battalion ammunition supply point?

7. A SOLUTION OF SECOND REQUIREMENT.—*a.* (1) (2) See Map B, (figure 20).

(3) Company transport to remain under company control. Ammunition train vehicles to revert to battalion control as soon as practicable, and not later than 1200.

(4) See Map B.

b. The battalion S-4 is charged with establishing and operating the battalion ammunition supply point. He may be assisted in its operation by the battalion motor officer and personnel of the ammunition and pioneer platoon. The battalion supply sergeant of the battalion section, transportation platoon, regimental service company may also be used for this purpose.

8. DISCUSSION OF SECOND REQUIREMENT.—*a.* (1) Desirable characteristics for battalion ammunition supply points are:

(a) Convenience to units served.

(b) Location at or in rear of the point where routes to subordinate units diverge.

(c) Facility of motor movement to the rear.

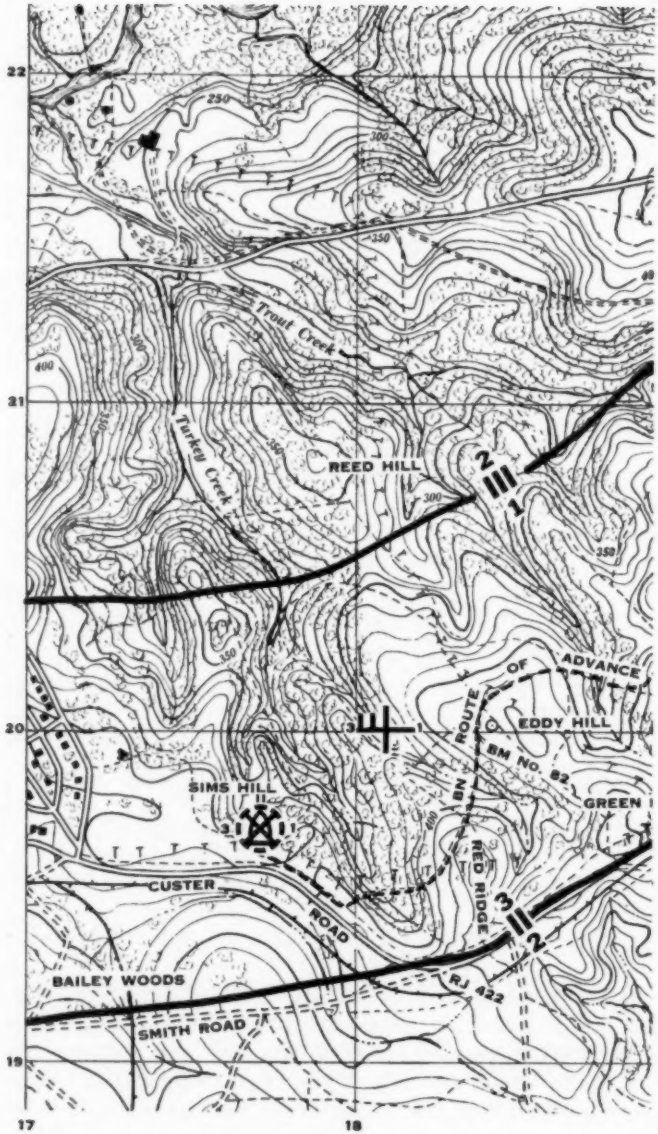
(d) Concealment from air and ground observation.

(e) Defilade from hostile small-arms fire.

(f) Identification by friendly troops should be positive by day or night.

(g) Adequate space for truck turn-around and transfer of loads.

A site possessing all of the above characteristics is the ideal and will not always be available. The value of each characteristic should be weighed, however, and the site possessing the more important ones should be selected. The site selected in this instance meets the above requirements. There are other suitable sites in the area.


22
21
20
19
17
18
Trout Creek
Turkey Creek
REED HILL
ROUTE OF ADVANCE
EDDY HILL
BM NO. 82
GREEN
SIMS HILL
RED RIDGE
CUSTER
ROAD
BAILEY WOODS
SMITH ROAD
RJ 422
250
300
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400
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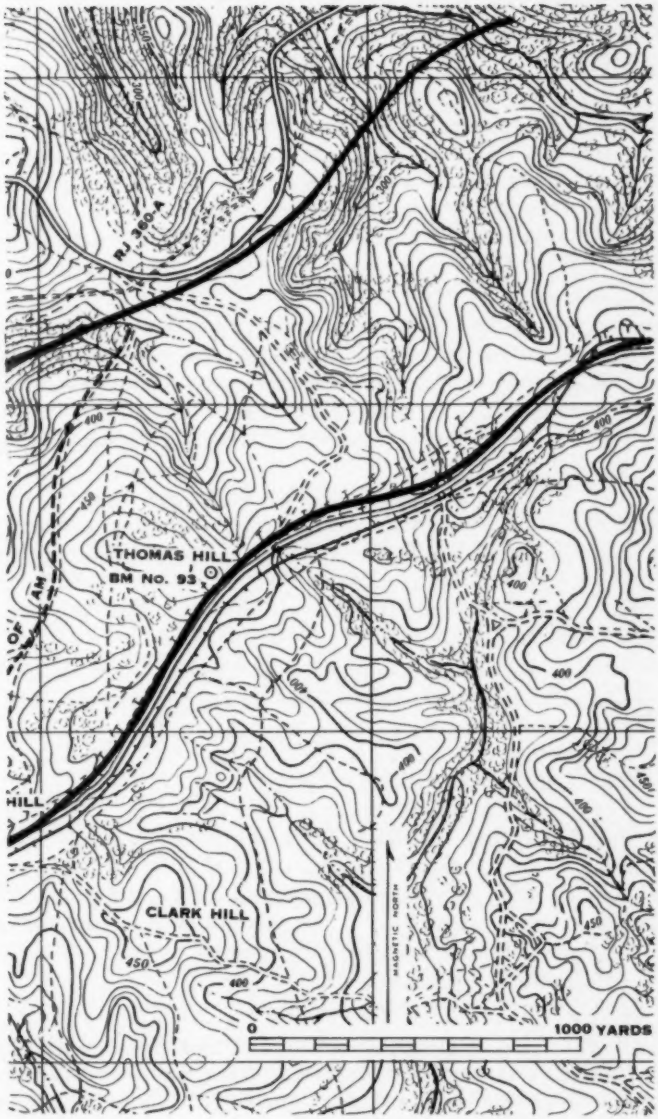


FIGURE 20.—Map B.

(2) The route of advance of ammunition should be prescribed by the battalion commander in all offensive situations. It should start with the initial battalion ammunition supply point and continue far enough to the front to include a probable location for the battalion ammunition supply point to serve troops on the final objective. Its purpose is to insure that units of the attacking echelon, which send back for ammunition, will not miss the battalion ammunition supply point even though it may be in the process of displacing.

(3) In offensive combat, when existing conditions will permit, the battalion commander should release company weapon carriers to company control and company commanders should release them to platoon control. Some of the conditions which warrant release of weapon carriers to company and platoon control are:

(a) Exercise of control will not interfere with the normal duties of the company commander or platoon leader.

(b) There are defiladed and concealed positions for the weapon carriers in the forward areas. Battalion and company commanders may regain control of the company weapon carriers at the request of their subordinates or when the situation requires changes in the use of these vehicles.

(4) The desirable characteristics of a site for a battalion aid station are:

(a) Protection from enemy flat-trajectory fire.

(b) Convenience to troops served.

(c) Economy in litter carry.

(d) Proximity to natural lines of drift of walking wounded.

(e) Facility of future movement of the station to the front or rear.

(f) Accessibility to supporting medical troops.

(g) Proximity to water.

(h) Protection from the elements.

It will rarely be possible to find a site that satisfies all of the above requirements. The three least important of these requirements are the last three. It is more important that the battalion aid station be convenient to the wounded

men than to the collecting company. A prolonged wait for evacuation, if necessary at all, should come after the wounded man has been treated in the battalion aid station rather than before. Water supply of the battalion aid station is essential, but it is much easier to carry water to the wounded than to move them by litter to a source of water supply. In the matter of protection from the elements, it will be seldom that a battalion aid station will have more than a small wall tent or tent fly.

b. The battalion S-4 is responsible for establishing and operating the battalion ammunition supply point, procuring ammunition from the regimental ammunition supply point, the movement of ammunition vehicles between the battalion ammunition supply point and the regimental ammunition supply point, and for the delivery of ammunition to units of the battalion.

9. SITUATION, CONTINUED.—Lieutenant Colonel 3d Battalion, on Eddy Hill, approved the administrative recommendations of his S-4. He issued the battalion attack order from that point, giving the time of attack as 1230. For boundaries, line of departure, and scheme of maneuver, see Map A, (figure 19).

10. THIRD REQUIREMENT.—As Captain Company M, what is your plan with respect to the following:

a. The administrative matters to be covered in the company attack order.

b. The location of the company ammunition supply point.

c. The disposition of the weapon carriers.

d. The individual to be placed in charge of the company ammunition supply point.

11. A SOLUTION OF THIRD REQUIREMENT.—

a. (1) Company ammunition supply point.
(2) Battalion ammunition supply point.
(3) Battalion route of advance for ammunition.
(4) Disposition of company vehicles.
(5) Battalion aid station.

b. Company ammunition supply point to be in the Company M assembly area and within signalling distance of the battalion ammunition supply point.

c. Released to platoon control.

d. Supply sergeant of Company M.

12. DISCUSSION OF THIRD REQUIREMENT.—*a.* All of the information contained in the solution is necessary to the platoon leaders and members of their platoons in the proper execution of their duties.

b. The company ammunition supply point is an installation set up to assist the company commander in his task of supplying his platoons with ammunition. It is normally a control point for vehicles operating between the platoon areas and the battalion ammunition supply point.

c. See paragraph 8*a* (3).

d. This requirement was included in the problem to bring out the fact that during combat, the company supply sergeant usually operates in the forward area with his company instead of in the regimental train bivouac. He assists the company commander in matters relating to supply, particularly ammunition supply.

13. SITUATION, CONTINUED.—*a.* By 1500, Companies I and K have captured the east slope of Thomas Hill in their zones of action, and are on the general line of BM No. 93 (19.53-20.45)—RJ 360-A (19.22-21.40).

b. (1) Company K is reorganizing preparatory to continuing the attack with the 1st and 3d Platoons in the attacking echelon. The 2d Platoon in support is located in the woods about 250 yards southwest of BM No. 93.

(2) The company command post is located about 150 yards west of BM No. 93.

(3) The company weapon carriers are under platoon control and are in the wooded draw southwest of Thomas Hill, echeloned to the rear, with the forward vehicle located at (19.30-20.30). The forward vehicle is loaded with sufficient rifle and automatic rifle ammunition to issue one bandoleer (48 rounds) to each rifleman and 240 rounds to

each automatic rifleman in two platoons. The other weapon carrier is loaded with light machine-gun ammunition and 60-mm mortar ammunition.

(4) The weapons platoon has a small amount of ammunition remaining at each gun and mortar position, and is prepared to effect replenishment from the weapon carriers.

(5) The rifle platoons have an average of 30 rounds per rifleman. Each automatic rifle team has 6 loaded magazines.

c. (1) The 1st Platoon, Company M, is supporting the advance of Company K from positions on the southeast slope of Thomas Hill in the vicinity of BM No. 93. The 2d Platoon, Company M, is supporting the advance of Company I from positions on the ridge in rear of Company I's present position. The 3d Platoon, Company M, is supporting the battalion's advance with two sections in the draw southwest of Thomas Hill and one section in the draw at (18.65-20.55).

(2) Two empty weapon carriers of Company M have just arrived at the company ammunition supply point; one from the 1st Platoon (Cal. .30 machine gun) and one from the 3d Platoon (81-mm mortar). The driver of the vehicle from the 1st Platoon has a note requesting 16,000 rounds (16 crates) of Cal. .30 machine-gun ammunition. The driver of the vehicle from the 3d Platoon has a note requesting the following rounds of 81-mm mortar ammunition:

(a) 96 rounds (16 bundles) HE, Light

(b) 27 rounds (9 bundles) HE, Heavy

d. The locations of the battalion ammunition supply point and the ammunition supply point of Company M are unchanged. An adequate supply of ammunition of all kinds is available at the battalion ammunition supply point.

14. FOURTH REQUIREMENT.—*a.* As Captain Company K, your plan for the immediate replenishment of the ammunition supply of your company.

b. As Captain Company M, your plan for replenishing the ammunition supply of your company.

c. As Captain Company M, state your plan for supplying ammunition to your company assuming that weapon carriers are unable to operate east of the line Red Ridge—Turkey Creek, because of enemy artillery fire on that area.

15. A SOLUTION OF FOURTH REQUIREMENT.—*a.* To employ members of the support platoon to distribute all of the rifle and automatic rifle ammunition loaded on the weapon carrier to the 1st and 3d Platoons. To send the empty weapon carrier to the battalion ammunition supply point to secure 5,000 rounds light machine-gun ammunition (5 crates), 90 rounds 60-mm mortar ammunition (5 bundles) on the ¼-ton truck, and 3,840 rounds rifle ammunition (5 boxes) and 1,920 rounds automatic rifle ammunition (2 boxes) in the ¼-ton trailer.

b. To send the two empty weapon carriers under supervision of the transportation sergeant from the company ammunition supply point to the battalion ammunition supply point for refill. On their return from the battalion ammunition supply point, to dispatch them to their respective platoon areas.

c. To advance the company ammunition supply point to the crossing of west fork of Trout Creek at (18.73-20.15). To request that the battalion commander make ammunition available at the new company ammunition supply point, and, further, to call on the battalion commander for personnel to assist in executing the hand-carry of ammunition from the company ammunition supply point to the using platoons.

16. DISCUSSION OF FOURTH REQUIREMENT.—*a.* The rifle company weapon carriers are normally used to replenish ammunition for the weapons platoon but may be used to bring forward ammunition for the rifle platoons. As soon as the weapon carrier is emptied, instructions should be given to return the vehicle to the battalion ammunition supply point for refill. The truck driver should be given a note requesting specific amounts and types of ammunition. Platoon leaders keep their company commanders informed as to the status of ammunition supply

within their platoons. Ordinarily replenishment of ammunition for rifle platoons in the attacking echelon can be effected only after capture of a terrain mask or after dark. In this particular instance, Thomas Hill furnishes a suitable terrain mask to permit replenishment of ammunition.

b. When conditions permit the operation of heavy weapons company weapon carriers forward of the battalion ammunition supply point, each platoon retains one loaded weapon carrier as near its position as practicable. The other loaded carriers, if present, are echeloned to the rear. When the forward carrier is emptied it is returned through the company ammunition supply point, to the battalion ammunition supply point, with a note requesting specific amounts and types of ammunition desired by the platoon leader. When refilled, the carrier is returned along the prescribed route, through the company ammunition supply point to the platoon from which it came.

c. The company ammunition supply point is placed at the crossing of west fork of Trout Creek at (18.73-20.15) to facilitate the distribution of ammunition to the platoon areas by carrying parties. The company commander is responsible for hand-carrying ammunition between the company ammunition supply point and the platoon areas. The company commander should attempt to foresee the need for such hand-carrying and make timely request to the battalion commander for needed assistance. The battalion commander may provide hand-carrying parties from the battalion ammunition and pioneer platoon or from other personnel of the battalion.

17. SITUATION, CONTINUED.—*a.* (1) As S-4, 3d Battalion. At 1800 you receive a message from the regimental S-4, stating that:

(a) The regimental point of release for kitchen trains will be the junction of Smith and Custer Roads (18.30-19.30).

(b) Kitchen trucks and trailers loaded with individual rolls and a hot supper will be released to battalions and separate companies at the above release point at 2040. They will revert to regimental control at 2320.

(c) Kitchen trucks and trailers loaded with a cold lunch and a hot breakfast will be released at the same point at 0420. They will revert to regimental control at 0700.

(d) Containers for the 1st, 2d, and 3d Platoons of Company M will be carried on vehicles of Companies K, I, and Headquarters Company respectively.

b. By 1900, the 3d Battalion has captured its objective (see Map C, figure 21), and has halted for the night preparatory to continuing the attack the next morning.

c. Use of lights on vehicles is prohibited.

d. Daylight begins at 0725; darkness begins at 2015.

18. FIFTH REQUIREMENT.—As the battalion S-4, state your plan pertaining to the following:

a. Battalion feeding plan.

b. Disposition of individual rolls tomorrow morning.

19. A SOLUTION OF FIFTH REQUIREMENT.—*a.* (1) To have a representative at the regimental point of release by 2040 to meet the battalion kitchen trucks and trailers and conduct them to a battalion point of release.

(2) To release the kitchen trucks and trailers to companies at the trail crossing at (18.90-20.10) at 2050. To require that kitchen trucks and trailers revert to battalion control at the same point by 2310. To return them to regimental control at the regimental point of release at 2320.

(3) To send a representative to the regimental point of release at 0420, for the purpose of conducting the trucks to the battalion point of release and releasing them to companies at 0430. To require that the trucks revert to battalion control at 0650.

b. To have the individual rolls loaded at breakfast and returned to regimental control with the kitchen trucks.

20. DISCUSSION OF FIFTH REQUIREMENT.—*a.* Battalion S-4's plan for feeding the battalion should be based on the regimental feeding plan. It should include provisions

for any additional supplies to be brought forward on kitchen trucks; a plan to move the kitchen and baggage vehicles while under battalion control; and the selection of a suitable point at which to release the kitchen trucks to companies. He must also plan to return the vehicles to Regimental S-4 by the prescribed time tomorrow morning.

b. During movement, individual rolls may be transported on trucks and trailers of the kitchen and baggage train only when a part of the prescribed loads of these vehicles has been dumped. S-4's are responsible that these rolls are delivered to the troops when they are needed. They are also responsible for picking up the rolls when no longer needed. Usually in an offensive situation they will be sent forward with the evening meal and recovered after breakfast the next morning.

21. SITUATION, CONTINUED.—*a.* At 1900 there is no change in the tactical situation. Battalion S-4 has notified all companies of the time and place the vehicles will be released to company control and returned to battalion control and of the disposition to be made of individual rolls.

b. Company K has two rifle platoons in the front line. Company M is disposed throughout the battalion area as indicated on Map C (figure 21).

22. SIXTH REQUIREMENT.—*a.* As Captain Company K, state your plan pertaining to the following:

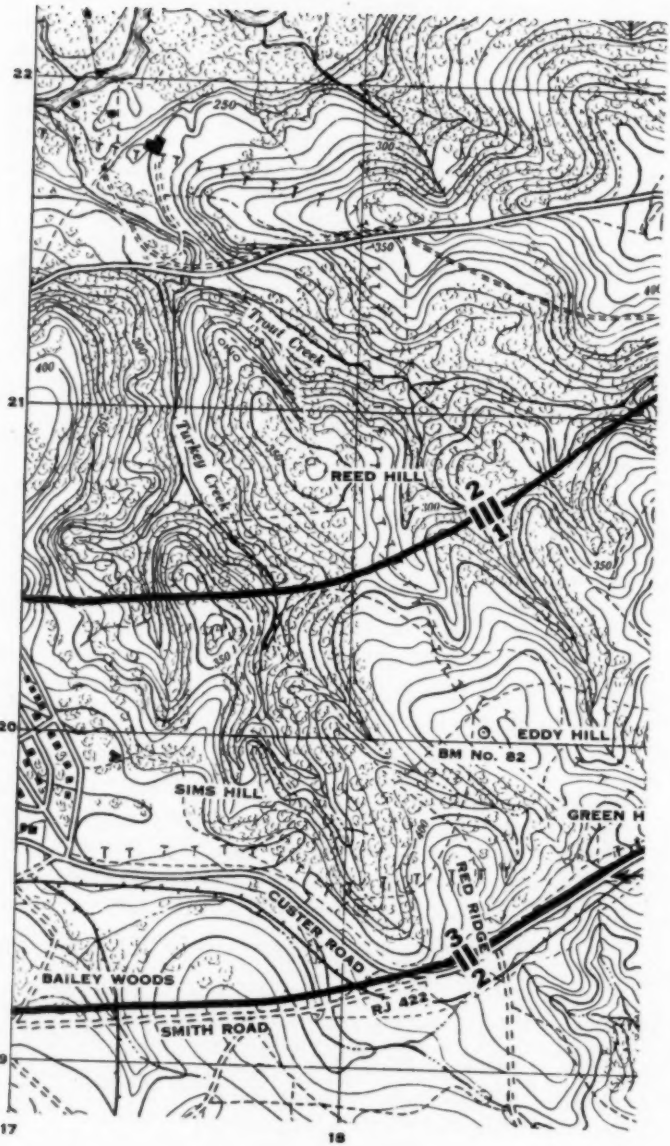
(1) The site of the company mess location.

(2) The method of feeding the units of your company.

b. As Captain Company M, state what you would do to insure the feeding of the units of your company.

23. A SOLUTION OF SIXTH REQUIREMENT.—*a.* (1) Point in draw at (19.55-20.70).

(2) To feed the two front-line platoons by carrying parties. To feed the remaining units of the company at the mess location. To notify the platoon leader of 1st Platoon, Company M of the time of arrival of the kitchen truck and the site of the Company K mess location.


22
21
20
19
17
18
Trout Creek
Turkey Creek
REED HILL
EDDY HILL
BM No. 82
SIMS HILL
GREEN H
RED RIDGE
CUSTER ROAD
BAILEY WOODS
SMITH ROAD
RJ 422
250
300
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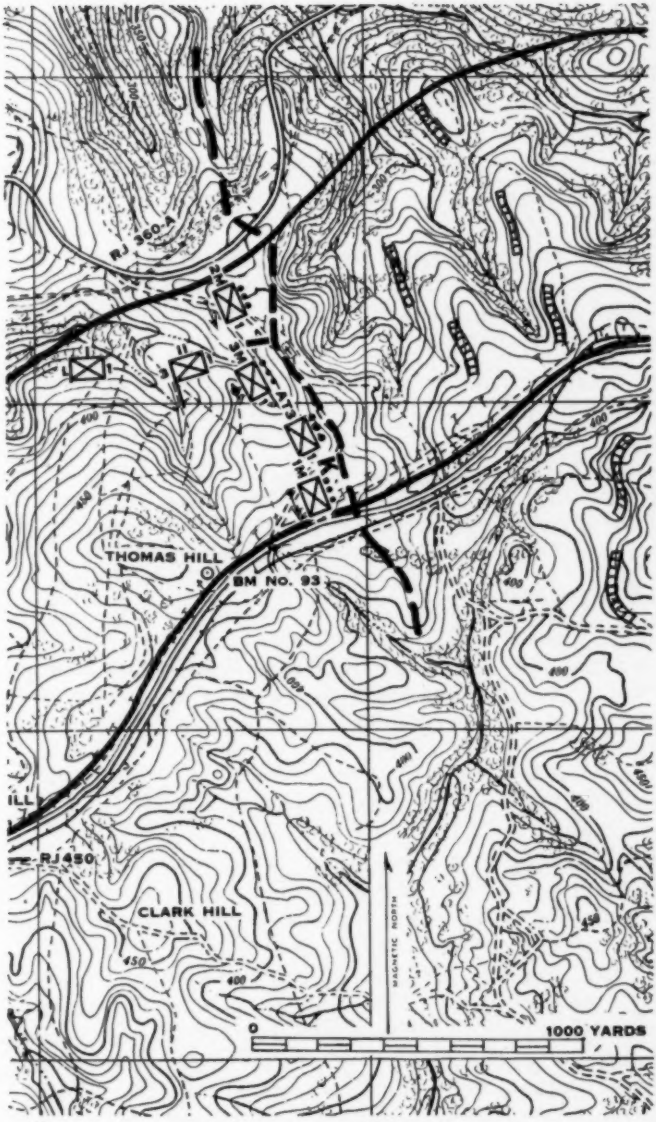


FIGURE 21.—Map C.

b. To check with the battalion S-4 and company commanders to insure that all elements of his company are provided for. To notify his platoon leaders of the company to which their platoons are attached for rations.

24. DISCUSSION OF SIXTH REQUIREMENT.—*a.* A company mess location should possess the following characteristics:

(1) Convenience to the units served.
(2) Defilade from hostile flat-trajectory fire.
(3) Concealment from hostile observation.
(4) Accessibility to the kitchen truck.

The site selected for the mess location of Company K meets these requirements. In some instances, the food and rolls of the supporting machine-gun platoon of Company M are brought up in the kitchen truck and trailer of the supported rifle company. There are two ways in which this may be done. If time permits, the uncooked food of the machine-gun personnel will be obtained from the heavy weapons company by the mess sergeant of the rifle company, cooked with that of the rifle company and sent forward in the rifle platoon containers. If not, the containers, filled with cooked food are picked up from the heavy weapons company kitchen as the rifle company truck leaves for the release point.

CHAPTER 7

New Ideas And Aids For Aircraft Recognition Training

Even though airplanes flying overhead are a common sight to most people, there are comparatively few who can distinguish one plane from another. There are two basic reasons for this: there has been little need for them to learn to distinguish one from another, and they have never had the distinguishing characteristics explained to them. In the case of the soldier, there is definite need to know the various kinds of planes, and if this need is sufficiently impressed upon him, his enthusiasm for the subject will be increased, and he will be much more easily trained in accurate recognition.

Official reports tell of tragic results caused by lack of recognition skill. Allied planes have been shot down by their own ground troops because the ground troops failed to recognize them. Units on the ground have been strafed because their air guards who saw the approaching enemy planes failed to recognize them for what they were, and did not alert the command. Conversely, carefully prepared time schedules for coordinated attacks have been disarranged because ground troops have unnecessarily stopped their advance and sought cover when friendly aircraft flew over. Lack of recognition skill results in unnecessary loss of lives and unnecessary destruction of valuable equipment. These are not obscure incidents. Each of them has happened a number of times, and lives have been lost because of them. It is the duty of every soldier to attain sufficient recognition skill to prevent recurrence of these incidents, and it is the responsibility of his leaders to train him properly so that he will attain this skill.

Recent developments in the subject of aircraft recognition have resulted in certain changes in the official methods of presentation of this subject. Basically, the methods used heretofore are sound, but there have been changes in the lists of planes to be taught and in the various training aids available.

Similarly, there has been a change in the ultimate goal of such training. Previously, the Army Air Forces' training goal was to teach each man to recognize airplanes by means of their total form, and to do so after having seen the plane for only a fraction of a second. Positive recognition after viewing a picture or silhouette of a plane for as little as one one-hundredth of a second was accomplished by some men undergoing training. Experience has indicated, however, that such rapid recognition is of limited value. On the other hand, earlier recognition, while the enemy plane is at maximum range and is approaching to attack, allows more time to maneuver and prepare to meet his attack. Improved antiaircraft sights and increased range of antiaircraft weapons have increased the importance of recognition from greater distance, even though a longer time may be required. Therefore, the Army Air Forces' goal of aircraft recognition training today is to provide positive recognition of planes at ranges of 1,500 to 2,000 yards. The speed of recognition is of less importance than before and the increased range is of greater importance than before. For this reason, individual training pictures and silhouettes of planes are shown, during advanced training, for as long as one or two seconds at a time; but all pictures shown present distant views of the planes.

Note that these training goals are those of the Army Air Forces, whose recognition methods and principles are also used by infantry and other branches of Army Ground Forces. Infantrymen are not confronted with the same recognition problems as airmen; their training schedules allot considerably less time to aircraft recognition; infantrymen are concerned only with ground views of aircraft; and it

is not expected that infantrymen will attain the high degree of recognition skill which is required of air force personnel. The basic training methods, however, are the same, and it will be found that some infantrymen are sufficiently interested and adept that they will achieve a very high degree of recognition skill in spite of the small amount of formal instruction time devoted to the subject.

The infantry's purpose in giving this instruction is to teach the soldier what distinguishing characteristics to look for, and after he has learned to recognize a particular group of planes, to provide him with opportunities to test his skill further.

It has been found that much effective training in this subject is other than formal instruction. Repeated observation of a particular type of plane, from different angles of view and from different ranges, is the only means of increasing one's skill in recognizing that model. The most the instructor can do in the limited time allotted is to give basic instruction and to stimulate interest in this subject. The recognition instructor must utilize every opportunity to encourage passive instruction and must provide means to assist this form of self-training. The aids provided for recognition training are readily adapted to such passive use as well as to formal instruction.

FM 30-30 presents a large number of enemy and friendly aircraft. The list is imposing, and the instructor and student would be hopelessly confused if an effort were made to learn all of them in the small amount of time available. So one of the first questions confronting an aircraft recognition instructor is, "What airplanes should I attempt to teach?" Lists of aircraft to be included in recognition training are published from time to time in the "U.S. Army-Navy Journal of Recognition." The most recent list appeared in the February 1944 issue of that publication. In selecting aircraft for inclusion in training programs, consideration must be given to the type of unit concerned, its state of training, and its probable destination or actual theater of operations. Infantry units emphasize only United States Army planes during initial training. When they

reach staging areas, Allied and enemy planes will be presented.

A logical second question which the instructor will ask himself is, "What training aids are available, and how should each be used?"

The basic reference for this subject is FM 30-30, "Recognition Pictorial Manual," 1 April 1943, distributed on the basis of 10 copies per company.

The "U.S. Army-Navy Journal of Recognition" is a monthly magazine published and distributed jointly by the two services. Distribution to infantry units is on the basis of two copies per company. The purpose of this magazine is to stimulate interest in recognition training, to provide a means for interchange of ideas on recognition teaching and training methods, and to provide a means of early dissemination of recognition information on new airplanes, vessels, and armored vehicles. This magazine contains much helpful information for recognition instructors and is sufficiently attractive and readable that it provides a splendid medium for passive instruction. Copies should be kept in day rooms and other places where they will be readily available to the men.

Silhouette poster sets showing United States planes are distributed on the basis of one set per company or similar unit in the United States. Additional posters are distributed automatically when new planes are officially adopted. The poster of each plane should be shown when the plane is first introduced to the students. By using the poster, the instructor can point to the distinguishing characteristics of the plane as he discusses them. Later, the posters may be displayed on the bulletin boards in barracks or day rooms where they will serve as passive instruction and a stimulant to further study. Another use for these posters is to coordinate their display with the posting of flash cards and is discussed below in connection with the use of flash cards. Facsimiles of the issued posters are easily hand drawn and will permit use of silhouette posters by more than one class at a time. If classes are necessarily too large

for all to see the issued poster, enlarged copies of it may be made.

Available training films are of three types: introductory films designed to acquaint the beginner with airplane nomenclature, films devoted to instruction in the recognition of individual aircraft, and "quizcraft" films which include several similar planes between which the student is taught to distinguish. The quizcraft training films are designed for use during advanced stages of instruction. FM 21-7 lists all of these films, and new films are announced from time to time in War Department Training Circulars and the U.S. Army-Navy Journal of Recognition.

Film strips are available for use in introductory training, orientation, and nomenclature of airplane parts. Film strips may be obtained from film sublibraries as described in FM 21-7. Available film strips are listed in FM 21-7, and new film strips are announced from time to time in War Department Training Circulars, and the U.S. Army-Navy Journal of Recognition.

Film slides for use in the standard film strip projectors are issued to all film libraries. There are several different types of sets of film slides, for use by different branches of the service, and in different theaters of operations. Set No. 1, which includes United States Army aircraft only, is distributed to all film libraries on the basis of one set per 3,000 men other than antiaircraft artillerymen. The set consists of approximately 200 slides. In addition to head-on, plan, and side silhouette views of all Class A United States Army airplanes, photographs of these planes as seen from various ranges and from various angles of view are also included. This is the set which will be used by infantry units in the United States. When such units arrive at staging areas, other sets will be available which include friendly and enemy aircraft of the theater of operations to which the unit is to be moved.

Film slides may be used when a new airplane is first presented for study. They may be used to supplement the silhouette posters because, while the posters show only side, plan, and head-on views of the planes, the slides present

photographs of the planes as seen from various angles. Certain distinguishing characteristics which are quite apparent in the standard silhouette views are obscured when viewed from another angle, and vice versa.

For example, the wings of the C-47, Skytrain, have a markedly tapered leading edge, a straight trailing edge, and pronounced dihedral; yet, to a ground observer who sees this plane approaching him, the leading edge of the wings appears straight, the trailing edge appears tapered, and the dihedral is not visible; and as the plane recedes from the ground observer, the entire wing appears to be swept back, the taper of the leading edge is exaggerated, and the dihedral is not visible.

The film slides may also be used in advanced training when it is desired to show the plane for only a very short time. By placing, removing, and replacing an obstacle in front of the projector lens, the period of showing the slide can be controlled.

Plastic models of aircraft are distributed, upon requisition by infantry units, on the basis of one set per battalion. Set No. 1 of these models consists of United States Army aircraft only and is the set which will be available to most infantry units. These models are scaled 1:72 of actual size of the aircraft.

Scale models may be used to supplement the silhouette posters and film slides when a new type of plane is presented to the students. They are particularly valuable for demonstrating the effect on appearance caused by viewing the plane from various angles. The models are an effective interest stimulator and, after their use in formal instruction, should be made accessible to the men. If they are displayed in barracks or day rooms, they will serve as reminders and will help develop the men's interest.

Models also may be used for study of the plane's silhouette when viewed from various angles. By using a translucent screen made of a bed sheet or a large sheet of paper, and by interposing the model between the screen and a bright light, the shadow of the model will be reflected

through the screen. By turning the model, the silhouette of the plane from any angle of view may be shown on the dark side of the screen.

Flash cards showing silhouettes of important United States aircraft are distributed on the basis of five sets to each company or similar unit. Each of these cards is four by six inches and shows the plan, head-on, or side silhouette of a plane. On the back of each card is printed the correct designation and name of the plane, a list of its distinguishing recognition features, and other general-interest data. The silhouettes are of a size that when viewed from about 30 feet, they simulate the actual size of single-engine fighter planes at approximately 1,000 yards, twin-engine aircraft at approximately 1,600 to 2,000 yards, and four-engine aircraft at approximately 3,000 to 5,000 yards.

Flash cards are designed primarily for use in connection with oral or written tests of the students' recognition skill. The method of conducting flash-card tests is discussed in another part of this chapter.

When not in use for formal instruction, flash cards should be made easily available to the men for further study if desired by them. These cards may also be posted on the walls of barracks, day rooms, mess halls, and other places which the men frequent. They should be posted where they may be seen from a distance, such as at the end of a corridor, and a mark should be made on the floor 30 feet from the card so the men can test their own skill. Care should be exercised that no more than one or two cards are posted in one place, and that the cards in any one place are frequently changed. Too many cards would cause confusion, and infrequent change would cause interest in the cards to lag. This use of the flash cards can be supplemented by the use of silhouette posters which should be displayed elsewhere for the men to check the accuracy of their recognition of the planes shown on the flash cards.

To insure that all members of the class understand the importance and goal of recognition training, and to establish common names of exterior parts of airplanes, the initial instruction should include an orientation and an explanation of airplane nomenclature. Analysis of two or three different types of planes may also be presented during the first instruction period.

Nomenclature instruction can be facilitated by the use of a large chart showing an airplane on which the instructor can point to each part as he names and describes it. The instructor should avoid becoming unnecessarily technical and should name only those airplane parts which will be referred to in recognition training. The following film strips are applicable to orientation and nomenclature training:

FS 1-31 —"A Preliminary Study of the Identification of Aircraft"
FS 1-38 —"Points to Look for in the Identification of Aircraft"
FS 4-218—"Recognition of Aircraft, Part I, Elementary Characteristics of Aircraft"
FS 4-219—"Recognition of Aircraft, Part II, Elementary Characteristics of Aircraft"
FS 4-220—"Recognition of Aircraft, Part III, Test"

In presenting a new type of plane, the instructor should adopt a standard and complete procedure. This will assure his covering each new model completely. One such procedure is to show the three silhouette views of the plane —head-on, plan, and side views—and to describe the plane as to type, name and letter-number designation, number of engines, wing type, and tail assembly. A short description of the history of the plane, comparison of its size, speed, and fire power with those of other types, and anecdotes concerning its recent use in combat will provide interest and will help to fix the plane in the students' minds.

General information may be found in FM 30-30, and on the back of the flash cards. Anecdotes on recent combat

use may be selected from newspapers and magazines. Technical and statistical information such as exact measurements, speed, and fire power is of little value to ground troops, will cause confusion, and should be avoided. However, comparative information and general data will give individuality to the plane and will help the students to remember. This should be followed by the instructor's description of each of the silhouette views shown on the poster. The instructor should start with the head-on silhouette, beginning with the center then going to the wings and tail. In describing the plan and side-view silhouettes he should start at the nose of the plane and work back to the tail. As each part of the plane is described, the instructor should point to the distinguishing features on the silhouette poster. Following the description he should give a short summary of the outstanding recognition features which distinguish the plane from others, and should point to each feature on the silhouette as he mentions it.

It is recommended that study be made of two new aircraft per session—never more than three. The presentation should be limited to no more than fifteen minutes per plane. Similar planes should not be presented during the same period. The airplanes presented in the early periods of instruction should be ones which are more difficult than most to recognize. This selection will result in a longer experience with the more difficult planes and therefore greater eventual familiarity with them.

The close of each period should be devoted to a short written test and review of the men's recognition of the planes presented. The men should grade their own papers while the instructor presents and discusses the distinguishing features of each of the planes. These short reviews are primarily for the purpose of forcing each man to make decisions concerning recognition of the planes and to permit each man to measure his own progress. Occasionally, the instructor should collect the papers after they are graded. This will provide the threat of papers being collected after any of the tests and will cause each man to make a more earnest effort than he might otherwise make. A study of

the papers by the instructor will indicate the effectiveness of the instruction.

As each new plane is presented, the flash cards, posters, and models of that plane should be displayed as outlined above, in barracks, mess halls, or day rooms. This coordination of passive instruction with formal instruction is essential to maximum benefit from both.

After the men have gained proficiency in the recognition of four or five planes, an effort should be made to test and increase the speed and range of recognition. This is done by means of the flash cards or film slides. These may be supplemented with pictures cut from newspapers and magazines. When a flash test is conducted, the class should be small and students should be seated approximately in a semi-circle so that each is about 30 feet from the silhouettes or pictures. A picture or silhouette of a plane is shown for a limited period and the men are required to write the designation and name of the plane. Their answers should be graded and a record of grades may be kept in the form of a progress chart. The element of competition between individuals and units will stimulate interest, and a study of the progress chart will indicate to instructors the effectiveness of training and will help in selecting those men who are potential assistant instructors.

In using the flash method, whether by means of cards, pictures cut from newspapers and magazines or by means of film slides, the instructor should adopt a uniform method of showing each view. Before flashing each view he should give a warning signal, such as, "Ready—Now." When checking the men's answers, each view should be shown again, to enable the men to see where they made their errors and to provide the instructor an opportunity to repeat the name, model, and main recognition features, and thus to fix the recognition in the students' minds. In instructing infantrymen, care should be exercised to select only pictures showing the planes as viewed from the ground. A number of pictures should be used showing the same type of plane from different views. The same pictures should not be reused frequently enough that the men recognize

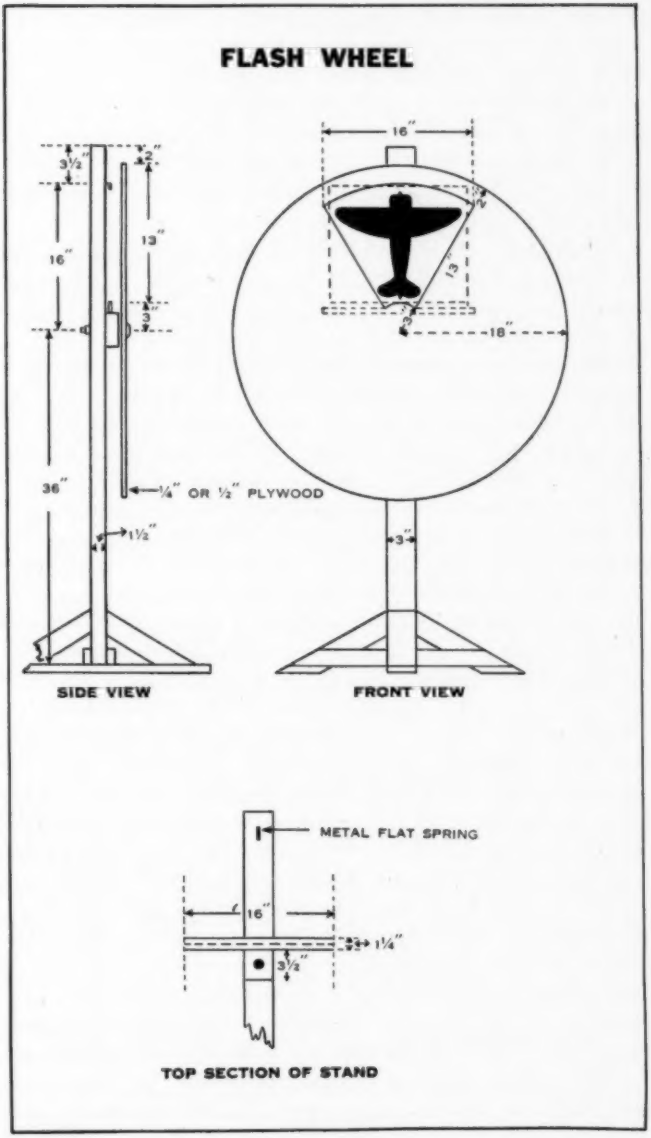

FLASH WHEEL
3½"
2"
16"
13"
3"
36"
¼" OR ½" PLYWOOD
1½"
SIDE VIEW
16"
18"
3"
FRONT VIEW
METAL FLAT SPRING
16"
1¼"
3½"
TOP SECTION OF STAND

FIGURE 22.

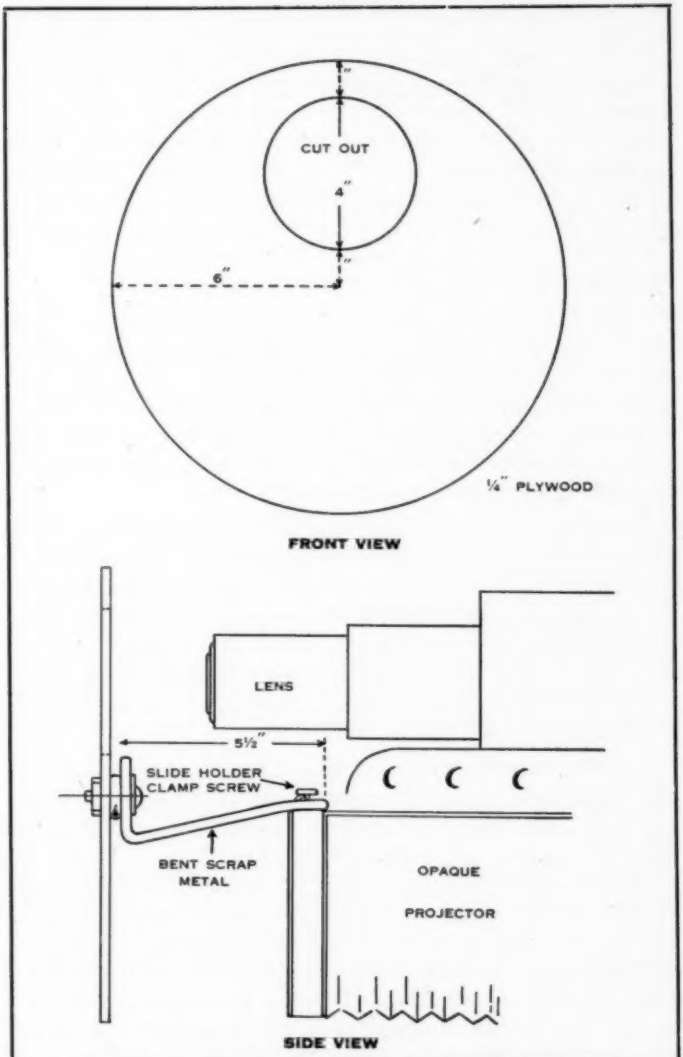
the scene instead of the plane included in the scene. If only United States planes have been studied, and time permits, include in the flash test a few foreign planes which have similar characteristics and are often confused with some United States plane. Recognition of these as foreign should be considered correct. After Allied and enemy aircraft have been studied, foes and friends should both be included in the test.

Several improvised devices have been developed for use in presenting flash images of planes. These devices are not essential but are easily constructed and provide a means of controlling the length of the flash exposure.

To use the flash wheel shown in figure 22, the large wheel is turned so that the opening is to the bottom, and the silhouette views or pictures to be used are set on the 16-inch cross piece and are held in place by the flat metal spring fastened to the upright. Upon the signal, "Ready—Now," the instructor spins the wheel, stopping it after one revolution. The speed of the wheel determines the length of exposure of the subject. After the plane has been recognized, the wheel may be turned to expose the picture or silhouette while the instructor discusses the plane shown. The pictures and silhouettes for use in this device should be mounted on cardboard approximately 13 by 15 inches in order to rest evenly on the rack. The effect of greater range can be accomplished by the use of smaller pictures mounted on cardboard or by placing the wheel farther from the class.

Another improvised flash wheel, designed for use with an opaque projector, is shown in figure 23. This attachment is used in a manner similar to the flash wheel shown in figure 22, except that the opening in this wheel permits the lens of the opaque projector to cast the image of the subject silhouette or picture onto the screen, and the rest of this flash wheel masks the projection.

The improvised slide shutter explained in figure 24 is designed for use with a slide projector. The projector is placed on the base of the device, and the flash lever is set so that the mask covers the lens of the projector. The picture or silhouette to be shown is inserted into the projector, but



FLASH WHEEL FOR OPAQUE PROJECTOR

SIG. 6

FIGURE 23.

the obstruction caused by the mask prevents the image of the picture from being projected to the screen. Upon the signal, "Ready—Now," the instructor quickly moves the flash lever to the opposite side. For the period that the opening of the mask is in front of the projector lens, the image of the picture or silhouette will be projected onto the screen. The length of the exposure is controlled by the speed with which the lever is moved and by the size of the opening in the mask.

Much has been said herein about the importance of passive recognition training. Such training, to be most effective, must be carefully planned. As nearly as possible new planes introduced during class periods should be presented simultaneously in passive training. Constant review of each plane previously studied will result in that model becoming thoroughly impressed in the student's mind.

In addition to merely confronting the men with repeated views of the planes, there should also be direct effort to attract their attention to comparisons between planes and to force them to make recognition decisions. A few ideas for accomplishing this are given below as examples. These ideas have been tested and found effective. Imagination and ingenuity on the part of the instructor can lead to the development of additional methods.

The "airplane of the day" idea is designed as an interest stimulator for use in the early stages of recognition training. This plan has some of the characteristics of a small-scale coordinated advertising campaign. As each new plane is presented in the instruction, silhouettes, pictures, and models of that plane are posted throughout the unit's area so that the men are confronted as frequently as possible with images of that plane. Concurrently, the plane might be briefly mentioned during instruction in other subjects. Although this plane is designated as "the airplane of the day," the campaign should be continued for two or even three days, until the men are familiar with the plane's appearance from any angle of view. Following an interval of a few days, another type of plane is given similar treatment.

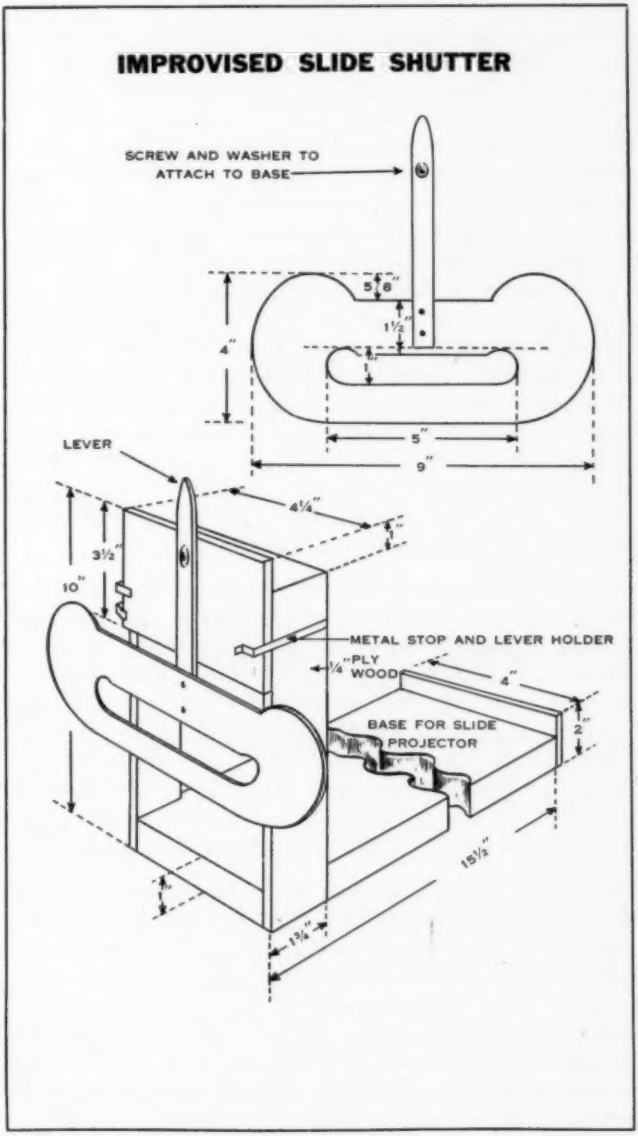

IMPROVISED SLIDE SHUTTER
SCREW AND WASHER TO ATTACH TO BASE
5/8"
1½"
4"
5"
9"
LEVER
4¼"
1"
3½"
10"
METAL STOP AND LEVER HOLDER
¼" PLY WOOD
4"
2"
BASE FOR SLIDE PROJECTOR
15½"
1¾"

FIGURE 24.

The chart illustrated in figure 25 has proved a good interest stimulator. It should be displayed in the day room, on the unit bulletin board, or any other place where the men will have easy access to it. This device consists of a piece of cardboard approximately 16 by 18 inches with the heading, "Do you recognize this plane?" painted across the top. The picture may be a photograph, silhouette, or drawing of any previously studied plane, and is mounted on a sheet of paper and posted on the chart. The sheet should be hung on the chart from the top only, so that after a man has recognized the plane, he may lift the bottom of the sheet to expose the correct answer which should be posted on another page inserted behind the first. This permits an "on the spot" check by each man. In addition to the correct designation of the plane, the answer sheet may also list the distinguishing characteristics of the plane shown and give some interesting data concerning the history or recent combat use of the plane. Sheets should be changed frequently, or interest in the project will lag.

A variation in the use of this chart is to provide a pencil and scratch pad beside the chart, so the men may write their recognition before checking their answers against the correct answer. The scratch pad may be ruled in columns and a plane designation marked at the head of each column. Men designate their recognition by a mark in the column of their choice. The mere opportunity to write without having to sign will increase their interest in the project, and a study of the written answers will indicate to the instructor the effectiveness of the unit's recognition training.

Similar to this recognition chart is another where pictures of distinguishing airplane parts are posted under the caption, "Do you recognize the airplanes from the parts shown?" The unit artist can easily prepare a sheet showing the noses of four or five planes, another showing wings, another showing fuselages, and another showing tail assemblies. Again, correct designations of the planes represented should be posted on the second page so that the men may make an on-the-spot check of their skill.

FIGURE 25.

Some men have difficulty in remembering the names of the planes even though they are familiar with the appearance of the plane itself. Drawings by the unit's artist can be made to suggest the names of some planes. A small amount of thought and ingenuity will produce many tie-ins of this sort: a picture of a P-39, Airacobra, can have a cobra's tongue and hood drawn into the nose of the plane; a picture of the P-38, Lightning, can have a streak of lightning extending behind the plane to indicate the plane's path; small, castle-like fortress turrets can be drawn atop the wings of the B-17, Flying Fortress, picture. Thus, the picture suggests the name of the plane.

Similarly, caricatures emphasizing distinguishing characteristics of the plane can be produced. For example, the cigar-shaped fuselage of the B-26, Marauder, is one of its characteristic features, and a picture of the plane, substituting a huge cigar for the fuselage, will emphasize this point. The smooth rocker-shaped underside of the P-39, Airacobra, fuselage is one of the distinguishing characteristics of this plane, and a caricature of this feature will help the student to remember it.

These caricature pictures can be displayed when the plane which they represent is first introduced, and later, they may be posted in the day room where they will make an interesting and instructive decoration.

Few subjects of military training present the possibilities of capitalizing on the men's natural interests to the extent that recognition training does. It is a subject which is fairly easily learned and to which the men's competitive instincts can be easily directed. Because repetition is the basis for increased skill in recognition, the subject lends itself readily to passive training. By means of careful orientation, a small amount of showmanship, and close supervision of the presentation of this passive training, the degree of recognition skill needed by infantry soldiers can easily be accomplished.

CHAPTER 8

Organization and Use of the Infantry Communication System

Reports from theaters of operations indicate that more lives have been wasted and more commanders relieved as a direct result of *loss of control* than for any other one reason. We know now from actual experience with bullets and lives, not merely from umpires and skin sheets of maneuvers, that control—or signal communications, to use a technical term—cannot be taken for granted. We use the terms "control" and "signal communications" synonymously because signal communications is the method of retaining control. It is the means by which a commander controls the movements and fire power of his subordinate units, and it is the means by which his subordinate units collect and disseminate information.

Obviously the personnel who are to use this control system, as well as those who are to establish and operate it, should know not only how to use it, but also what its limitations are and just which means of communication is best adapted for use in various tactical situations. Prior training of all personnel for the contacts they will have with the communication system, planning for communications prior to an operation, and constant application of communication principles throughout an operation, are essential in combat.

Communication is a command responsibility. There are various members of a commander's staff who, as we will bring out later, are primarily concerned with communications, but the responsibilty for an adequate control system by which he can control his unit rests solely on the unit commander.

All commanders and all staff officers should be familiar with the principles of technique for setting up a control system, using the available communication personnel and equipment. Similarly, they must all be familiar with the needs for communication in all types of tactical situations.

We will first take up some of the principles of technique that a commander or staff officer should know in setting up a control system.

Any operation—attack, defense, march or whatever it may be—is initiated by the unit commander's order. In this order he will provide for the control system of the contemplated operation. The specific place in the order that is reserved for the setting up of the control system is paragraph 5.

In paragraph 5, a definite sequence of information is habitually used. In formal written orders this sequence consists of subparagraphs.

Paragraph 5*a* contains: (1) a reference to the index of the signal operation instructions (SOI) to be in effect during the operation; (2) restrictions on the use of radio; (3) repetition of any pyrotechnic signal contained in the SOI and which is sufficiently important in the particular situation that the unit commander wants to re-emphasize it by mentioning it in his order; and (4) instructions or orders to subordinate communication units.

In paragraph 5*b*, the axes of signal communication for the unit issuing the order and for its major subordinate units are given. These will be discussed further in another part of this chapter.

Paragraph 5*c* gives locations of march control points and advance message centers if any are to be established.

Following is an example of paragraph 5 of a formal, written regimental field order:

5*a*. Index No. 3 to SOI in effect.
Radio silence until 0530.
Signal to lift arty fire—green star parachute.
2d Bn wire team will report to Regtl CP location to lay wire to 2d Bn CP.

b. Axis of Sig Com:
1st Inf: T Jones (65-43) opens 0300 9 Nov 44—Bridge at (65.6-44.8)—RJ 609-B (67-45).
1st Bn 1st Inf: RJ 608-C (65-43) opens 0330 9 Nov 44—Thereafter along Thomas Road.
2d Bn 1st Inf: Schoolhouse (67-45) opens 0300 9 Nov 44—Select and report future locations.

c. Adv Msg Cen at (65.8-44.2), opens 1830 8 Nov 44.

Most orders given in regiments and smaller units will follow the general sequence but may not be so precisely divided into subparagraphs as this formal, written example.

In very few cases will it be necessary for a regimental order to contain *all* the information given in this example. It is seldom that an advance message center will be established by a regiment. In some operations, radio silence will not be imposed; nor will special instructions to subordinate communication units always be necessary. However this example gives the sequence for whatever of this information is to be included in an order.

We will discuss and amplify the items given in this sample paragraph, explaining the meanings and reasons for each of its subparagraphs.

Signal Operation Instructions are a type of combat order normally prepared by division or higher headquarters, in advance of a contemplated operation in the field, for the technical control and coordination of signal communication agencies throughout the command.

An SOI may remain in force during an entire operation or during a cycle of operations. It will be changed by the issuing authority whenever necessary to insure secrecy or technical coordination. A unit SOI will usually include a number of codes such as the panel code—a code for the transmission of messages to airplanes by means of signal panels; fire control code for control of artillery fire; identification panel code for identifying to aircraft certain installations such as command posts by means of panels; map coordinate code; pyrotechnic code and airplane signals; prearranged message code; authentication code; the circuit

designation code for the tagging of wire lines; and the cipher keys for use with the converter M-209. Radio call signs, radio frequencies to be used, and telephone directory names will also be included.

Because some of these must be changed more frequently than others in order to insure secrecy, they are prepared as separate items. An example of one which normally will have to be changed frequently is the authentication code. In order, then, to keep track of these various items an index system must be provided. This is done by numbering each item serially beginning with number 1, as they are prepared. By designating each of these items by serial number, it is possible at a given time to use, for example, authentication code number 8 and panel code number 4. In order to provide a handy reference to the SOI, an index is prepared. The index, also, is considered an item of the SOI and is numbered serially when the SOI is prepared. The SOI index contains the titles of all items in the SOI and the serial number of each item. Therefore, the only SOI reference needed in the order would be the serial number of the currently effective index. By referring to that index we can obtain the serial number of any particular item we want and which is currently in effect. Whenever we change any item it becomes necessary to publish a new index having the corrected serial number for this item.

We said previously that we would include orders for subordinate communication units in paragraph 5*a*. This is done whenever any special coordination or instructions are needed and where the normal procedure will not suffice. For example, it is normally the responsibility of each headquarters to lay wire forward to its next subordinate headquarters. Thus, the regimental headquarters normally lays wire to the battalion headquarters, but where it will expedite the installation to have a battalion lay this wire, an order to that effect can be incorporated in paragraph 5*a*.

Let us now turn to paragraph 5*b*—Axis of Signal Communication. The axis of signal communication designates the initial and probable successive future locations of a

unit's command post. These locations are named in a sequence corresponding to the direction of movement—or the route along which they are to be found.

In planning an operation involving movement, the probable successive locations of the command posts may be named in advance if practicable. The last named point would be the point which would normally be occupied by the command post when the unit's objective is taken. In an attack, they would be named from rear to front; in a retrograde movement, from front to rear. Collectively, these points constitute the axis of signal communication for a unit.

Higher headquarters normally names the axis of signal communication for each of its major subordinate units. This results in definite advantages. (1) For the subordinate commander it saves time which would otherwise be used in selecting his axis of signal communication. (2) For the higher unit this method permits the earliest possible beginning of installation of communications to its subordinate units. For example, as soon as the recommendations of the regimental communication officer are approved, the locations of the battalion command posts become known and wire parties can be started out to the battalion command posts immediately. This will obviously enable wire communications to be installed sooner than if the regimental wire parties had to wait until the regimental order was issued, the battalion commanders had selected their command post locations, and had reported this information to regimental headquarters. (3) Better initial control is provided because command post locations throughout the command become known as soon as the regimental order is issued.

There are several ways that axes of signal communication can be described in the unit's order. In designating any axis the initial location should always be given. The difference is in the method of designating future locations.

Commanders may establish axes of signal communication by:

(1) Naming points. In this method each point that is contemplated as a designated command post location is named. This method is used in relatively slow-moving situations when the terrain in the zone of action affords points which are acceptable as designated command post locations. This method will seldom be used in designating the axes of units smaller than a regiment and even in the case of a regimental axis, this method will not be frequently used.

(2) Designating a general line. In this method, the initial point is named and the subordinate unit is directed to select and report future locations along some terrain feature running through the zone of action and generally parallel to the direction of the action. Examples of acceptable terrain features are roads, streams, trails, and railroads. This method is used in rapidly moving situations and when such a terrain feature is available in the zone of the unit whose axis is being so designated.

(3) Directing subordinate commanders to select and report. In using this method, the initial location is named, but the subordinate commander is directed to select and report his future command post locations. This method is used when there are no outstanding terrain features that can be used for naming points or there is no general line such as a road available.

Note that the initial command post location is given in all three methods of describing an axis of signal communication.

The locations we have discussed so far are called "designated" command post locations. They are the locations that are named in paragraph 5 of the commander's order. These locations are points which are easily recognized and identified both on a map and on the ground. Examples are road junctions, crossroads, bridges, or outstanding buildings. They are the points to which personnel will come when looking for the command post. A guide or marker will be at this point directing personnel to the occupied point or exact

site of the command post. This exact site may be anywhere from 200 yards to 500 yards from the designated location. It should be at least 200 yards from the designated location, which is an outstanding terrain feature and provides the enemy artillery a convenient registration point. Likewise, the command post should be no farther than 500 yards from the designated location as this is as far as personnel can easily be directed to the exact site from the designated location.

Who selects the designated location and the exact site of command posts? After consultation with the regimental communication officer, S-3 makes recommendations for the designated locations to the regimental commander. Upon the commander's approval of these recommendations, S-3 incorporates them in the field order. These constitute the axis of signal communication.

As soon as possible after the axis of signal communication for the regiment has been approved, S-1 (or sometimes the Headquarters Commandant) goes to the designated point and picks the exact site somewhere in the vicinity of the initial designated location. The communication officer will either go with S-1 or will make arrangements to meet S-1 at the designated location. After picking the exact site, S-1 points out the interior arrangement of the commander and staff locations within the command post. Because of the nature of their work he groups the commanding officer and staff officers as follows: (1) Commanding officer and executive officer (2) S-2 and S-3; and (3) S-1 and S-4. S-1 also designates an area for the parking of command post vehicles. As soon as S-1 has completed these selections, the communication officer selects locations for the message center, switchboard, radio stations and other communication installations. In making these selections both S-1 and the communication officer keep in mind those men who have to work together, and insofar as possible place them close together. Figure 26 shows an arrangement of a regimental command post's installations. No installation should be closer than 50 yards from any

other installation within the command post. This dispersion will reduce casualties from artillery fire or air bombardment. Foxholes should be constructed for all personnel, including casuals not a part of the command post but who will be present from time to time.

The selection of the exact site for a command post must take into consideration the following factors:

(1) Type of tactical operation.—In the attack, the command posts are fairly close to the leading echelons in order to avoid early displacements; in the defense, the command post is farther to the rear to prevent its disruption by local enemy penetrations.

(2) Routes of communication.—There must be adequate routes forward, over which to direct messengers, wire-laying parties and others who are to maintain contact with subordinate units. Similarly, there must be adequate routes to the rear to permit movement to higher command posts.

(3) Distance to subordinate units.—This distance should be as short as possible to avoid delay in delivery of messages, reduce the time necessary to install communication systems and thereby increase the degree of control of subordinate units. The distance to higher headquarters is the responsibility of that headquarters. The goal should be to locate all command posts as far forward as practicable.

(4) Cover and concealment.—A command post site should be defiladed from small-arms fire to the front, and on a reverse slope to minimize the effects of artillery and mortar fire. Available concealment should be utilized to the maximum.

(5) Closeness to good observation.—The unit commander must observe the actions of his subordinate units, and an observation post should be as close at hand as possible.

(6) Natural obstacles to mechanized attack.—Streams, swamps or any other obstacle to mechanized equipment should be utilized to the fullest extent to prevent mechanized attacks on the command post.

The communication officer must also bear in mind these considerations when recommending designated locations so

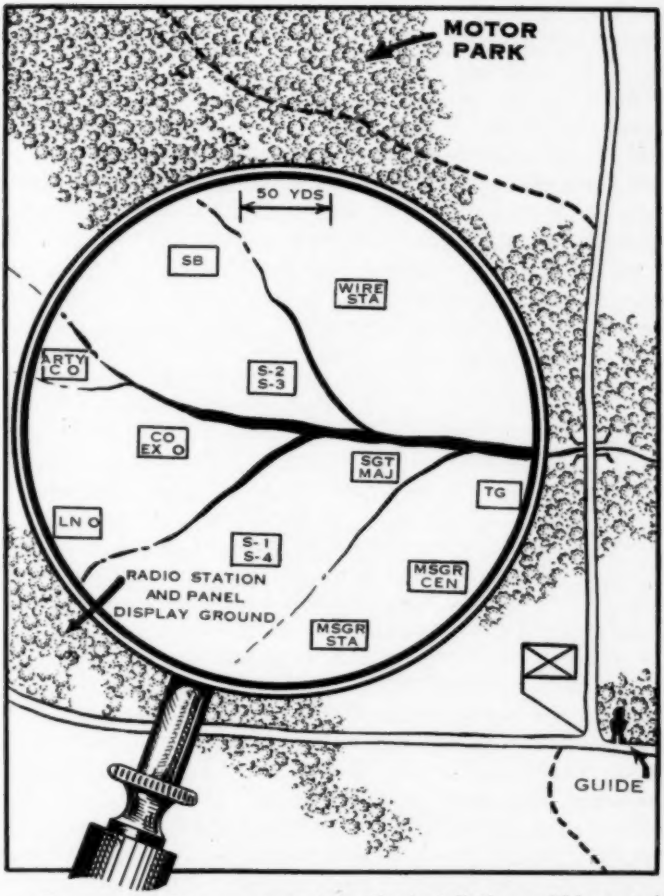


FIGURE 26.—An arrangement for the installations within a regimental command post. A guide is placed at the road junction, the designated location. Within the command post, the personnel and equipment are located so that installations doing closely related work are near one another. Dispersion of installations is necessary for protection from artillery fire and air bombardment. The message center is the first installation contacted on entering the command post from the designated location. The sergeant major is conveniently located for receipt of incoming messages. The telegraph is close to the message center. The radio is located well outside the perimeter of the command post to prevent the enemy from locating the exact site of the command post by means of radio locating equipment. The switchboard is located so that command post activity will not interfere with the operator and so that lines can be brought into the switchboard without running through the command post proper.

that exact sites will be available within 200 to 500 yards of the designated locations.

As the attack progresses and designated locations subsequent to the initial ones become accessible, future exact sites must be selected in contemplation of the movement of the command post, and the arrangement of installations within these sites must be planned in a manner similar to that used in planning the initial command post.

So far we have been discussing the principles of technique in planning the control system. We will now consider the personnel and equipment available for communication purposes in an infantry regiment.

The figures given below are based upon the Tables of Organization and Equipment, dated 26 February 1944.

There are 1 captain, 1 warrant officer, and 47 enlisted men in the communication platoon of regimental headquarters company. There are 1 lieutenant and 22 enlisted men in the communication platoon of each of the 3 battalion headquarters companies. In addition to these, there are a total of 203 enlisted men available for communication purposes in the 9 rifle companies, 3 heavy weapons companies, the antitank company, cannon company, service company, and in units of battalion and regimental headquarters companies other than communication platoons. These make a total of 4 officers, 1 warrant officer, and 316 enlisted men, or approximately 10 per cent of the infantry regiment's personnel who are directly engaged in installing, maintaining, and operating the regimental communication system.

The means of communication available within the infantry regiment include: messengers (foot and motor), radio, wire, and visual signals.

There are three types of radio sets available. They are the SCR-536, SCR-300, and SCR-284 or SCR-694.

The SCR-536 is the smallest of these sets. It is sometimes called the "handy-talkie," or because of its size and shape, the "cigarette-carton radio." This radio has a dependable operating range of one mile. It is built for voice operation

only. It is used primarily for communication between company and platoon headquarters, and six of these sets are allotted to each rifle and heavy weapons company.

The SCR-300 equipped with the large battery weighs approximately 38 pounds, is back-packed and is commonly referred to as the "walkie-talkie." It has a dependable operating range of three to five miles, is built for voice operation only and is used between battalion headquarters and the companies of the battalion. The antitank company, cannon company, and the intelligence and reconnaissance platoon, because of the wide dispersion of these units in combat, are also equipped with this set. Allotment is as follows: six per battalion headquarters, five in the antitank company, five in the cannon company, and four in the intelligence and reconnaissance platoon. There are also eight utility sets of this type in the regimental communication platoon for whatever uses the regimental commander directs. These may be assigned for use by battalion aid stations, rear-area security installations, patrols or by the regimental commander himself for communication with the command post.

The SCR-284 may be used as either a vehicular set or a ground set and can be operated by voice or International Morse Code. The set breaks down into a three-man load for carrying. It is usually mounted in a ¼-ton truck when vehicular operated. The set has a dependable operating range of 20 miles by voice or 40 miles by key or International Morse Code. The set is used for communication between regimental and battalion headquarters, regimental headquarters and the train bivouac, regimental headquarters and the intelligence and reconnaissance platoon, and for communication with division headquarters. There is one of these sets in each battalion, one in the antitank company for use in the division antiaircraft-antitank warning net, and six in regimental headquarters. A new radio set, the SCR-694 is being developed to replace the SCR-284. Its characteristics are similar but it is much lighter in weight.

It will be noted that in describing the range of each of the above types, the term "dependable operating range" has been used. Under ideal conditions, which seldom exist, any of these sets is capable of considerably more range than that indicated above. Experience has shown that much of the criticism of these sets by men in the field is the result of trying to use the set for longer ranges, and therefore bigger jobs, than those for which the set was designed. The dependable operating range of each set is adequate for the normal use by the unit to which the set is issued. Beware of "sending a boy to do a man's job," then criticizing the "boy" for failure.

The major wire equipment of the regiment consists of field telephones, sound-powered telephones, switchboards (6- and 12-drop boards), field (heavy) wire W-110-B, assault (light) wire W-130, wire-laying equipment and telegraph sets.

Visual signaling methods used within the regiment include pyrotechnics, signal panels, arm-and-hand signals, and flashlights. By using the International Morse Code or prearranged signals, flashlights and improvised signal flags may be used to transmit messages. Flag sets and signal lamps formerly were items of issue, but these have recently been deleted from the infantry Tables of Equipment. Flashlights and improvised flags can be used, however, as field expedients.

Figure 27 is an extract of the Tables of Equipment showing major items of communication equipment and their distribution. In addition to these mechanical means of communication, messengers are included in all component units of the regiment.

Note that all of the communication equipment within an infantry regiment can be hand-carried. This is essential because of the many situations wherein the unit will operate on terrain which prohibits the use of transportation. On the other hand, organic transportation is available to transport this equipment when the terrain and the tactical situation permit.

It is apparent that the personnel and equipment discussed above are adequate, provided the men are properly trained and the equipment is properly used. It is the responsibility of the unit commander that this be done. It is also his responsibility to devise a means of organization and application of this personnel and equipment to fit each contemplated operation of the unit.

The following short exercises illustrate general communications principles applied to different types of operations and provide discussions of the use of various means of communication in those operations. These exercises are tactically unrelated to one another, but are arranged chronologically for the reader's convenience.

TACTICAL EXAMPLES

In the tactical employment of signal communication agencies, unit commanders are frequently confronted with the question, "Should I silence my radios?" Under normal conditions, particularly with respect to regiments and battalions, this question will be answered in the orders received from higher headquarters. However, when no instructions governing the use of radios are received, the commander should ask himself further, "Do I need radios to control my unit in this operation? If so, do I need them badly enough to sacrifice the secrecy which may be lost by their use?" The final decision should be based upon the answers to these two questions, and is entirely a matter of relative importance of secrecy versus the added degree of control which radio would provide.

In the following situations, no mention is made of either the use of dog messengers or pigeons. Both of these means are available only if and when division headquarters makes them so. Pigeons fly back to the mobile loft at the division command post. They have often proved a valuable means of communication when everything else fails, or is unavailable. Dog messengers have not as yet been put to sufficient test to determine their value as an additional means of communication.

EXTRACTS FROM

T/E 7-12; T/E 7-13; T/E 7-14; T/E 7-16; T/E 7-17; T/E 7-18; T/E 7-19. 26 FEB. 1944

ITEM	RIFLE CO	HW CO	CAN CO	AT CO	SER CO	BN HQ CO	REGTL HQ CO	REMARKS
Axle, RL-27			3			3	6	
Chest, BC-5						3	4	
Chest Set, TD-3			4			5	8	
Coil, C-161						1	4	
Converter, M-209						2	2	
Detector Set, SCR-625				3		2		
Flashlight, TL-122	23	62	44	53	67	50	81	
Frequency Conversion Kit MC-518							1	
Frequency Meters, SCR-211							1	
Headset, HS-30			4			5	8	
Holder, M-167				1		3	8	
Lantern, electric, portable, hand	2	2	2	2	6	3	11	
Launcher, Grenade; M-7, M-8	37	30	19	18	37	11	14	Ord
Lineman's Equipment, TE-21						2	8	
Maintenance Equipment, ME-40			1	1		1	2	
Maintenance Kit, ME-36						1	1	
Maintenance Kit ME-53			1	1		1	2	
Microphone T-45			4			5	8	
Panel Set, AP-50-A	3	4	13	16	16	8	4	
Panel Set, AP-30-C						1	1	
Panel Set, AP-30-D						1	1	
Projector, Pyro, Hand, M-9	4	3	4	5		4	3	Ord
Radio Set, SCR-694				1		1	6	
Radio Set, SCR-300			5	5		6	12	(4 I & R Plat 8 Com Plat)

ITEM	RIFLE CO	HW CO	CAN CO	AT CO	SER CO	BN HQ CO	REGTL HQ CO	REMARKS
Radio Set, SCR-536	6	6						
Reel Equipment, CE-11	2	20	12	12		8	8	
Reel Unit, RL-31			1			1	4	
Remote Control Unit, RM-29				1		1	6	
Switchboard, BD-71			1			1		
Switchboard, BD-72							2	
Telegraph Set, TG-5						1	4	
Telephone, EE-8			6			8	12	
Test Equipment, IE-17						1	1	
Test Set, I-56						1	1	
Tool Equipment, TE-33	2	20	17	14		22	50	
Tool Equipment, TE-41						1	1	
Vibrator Pack PP-68 /U						1	1	
Voltammeter, I-50						1	1	
Wire, W-110-B, on DR-4-miles						4	20	
Wire, W-130-A, on DR-4-miles			8			4	5	
Wire, W-130-A, on DR-8-miles	½	5	3	3		2	2	For use w/Reel Equip CE-11
Wire Pike, MC-123						1	2	
Transportation								
Trailer, ¼ Ton						2	4	
Trailer, 1 Ton							1	
Truck, ¼ Ton						5	8	
Truck, 2½ Ton, 6 x 6 w/winch							1	

FIGURE 27.

Regiment in Bivouac

Situation: The 3rd Infantry has been ordered into a bivouac area. The regimental commander has decided to protect his area by an outpost line of one battalion and a detached post consisting of a rifle platoon with a section of heavy machine guns attached. (See figure 28.)

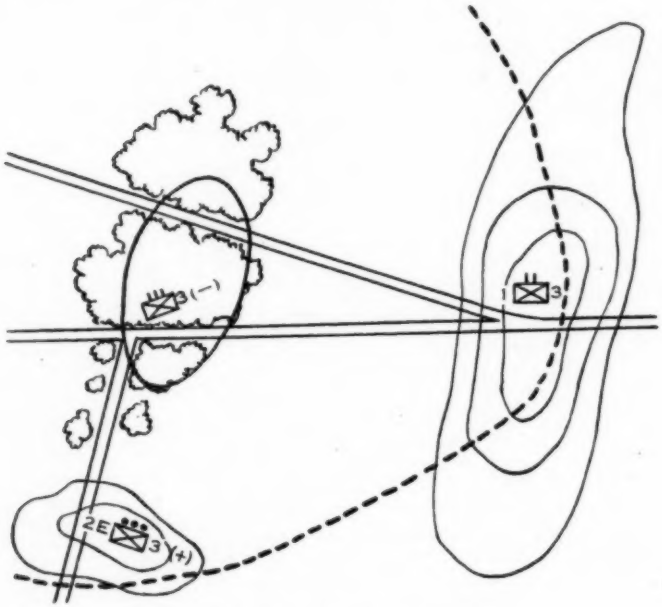


Figure 28.—Regiment in bivouac.

Tactical considerations: A bivouac should be considered in the nature of a preparation for a following operation.

Insofar as tactical requirements permit, the comfort and convenience of the troops are considered.

Bivouac areas should provide cover and concealment. Units are dispersed only so much as is necessary to provide a passive anti-aircraft protective measure.

A command in bivouac establishes an outpost to provide protection in all directions from which a hostile force may

have access to the main body. The outpost for a regiment may vary in strength from a reinforced company to a reinforced battalion, but should be no stronger than is necessary. Small detached posts at crucial points may supplement the main outpost in order to give all-around protection.

Requirement: Your decision, as S-3 of this regiment, as to signal communication necessary in this situation for the regimental commander to control his regiment.

Solution.—

Radio: Troops are close together, and control is not difficult. In balancing "control vs. secrecy" as previously mentioned it is hardly likely that the C.O. will need radio for the *control* of his unit in bivouac. Troops should be resting rather than on duty at radio sets. To use radios would mean unnecessary use of batteries which should be saved until their use is necessary for control purposes. However, the radio at the regimental command post should be listening for any message which may be sent from the outpost battalion. The radio set at the outpost battalion should only be used in the event contact is made with the enemy, and satisfactory communication with regiment cannot be expected by other means.

Wire: Wire is *not* normally laid in bivouac areas for the same general reasons as govern the use of radios. It is an unnecessary use of wire which either must be left where it lies, or if its recovery is necessary, requires working the communication personnel unnecessarily. Wire will be laid from the regimental command post to the outpost battalion. Depending upon the terrain and the imminence of contact with the enemy, wire might be employed between the outpost battalion and the detached posts.

Messenger: Messengers would be used to a great extent in this situation between the units in bivouac. Also, both motorized and foot messengers may be used between the outpost battalion, the detached posts and the regimental command post.

Visual: Visual signals, either by pyrotechnics (usually used as a warning signal in this type of situation) or improvised flags or flashlights could be used in the bivouac

areas. They could also be used as emergency or warning signals by the outpost battalion and the detached posts. It must be remembered that visual signaling can be employed only when the terrain permits visibility between the sender and receiver. Flashlights may be used as improvised signal lamps, and a handkerchief or a rag tied to a stick makes an improvised signal flag. Morse code is normally employed when lamps or flags are used. The use of lamps may be prohibited by the likelihood of enemy observation.

Regiment in Route March

Situation: The 300th Infantry has been ordered to march on ORTBURGH (18 miles directly east of bivouac area). The regimental commander has decided to make this march in one column along the north road, protecting his regiment by an advance guard of one battalion. (See figure 29.)

Tactical considerations: A regiment on the march is disposed so as to provide all-around protection and permit

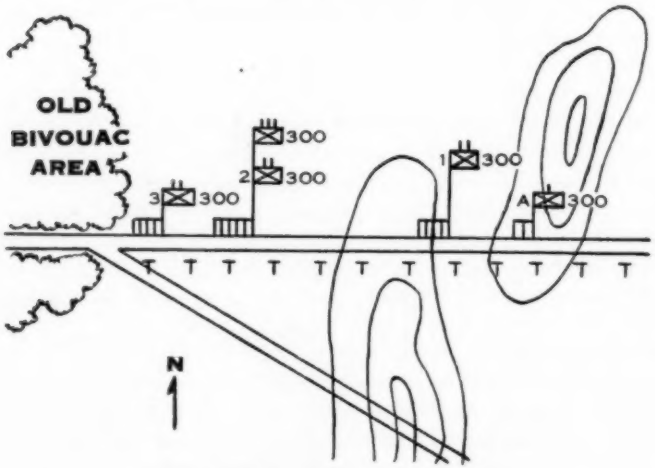


Figure 29.—Regiment in route march.

rapid development for combat.

The regiment protects itself on the march by some or all of the following: Motorized detachments; advance, flank

and rear guards; antiaircraft, antimechanized, and antichemical warning system; antimechanized defense; antiaircraft security.

Requirement: Your decision, as S-3 of this regiment, as to the signal communications the regimental commander will need in this situation to control his regiment.

Solution.—

When a unit is making a march, either by foot or motor, march command posts are established by each battalion and by regimental headquarters. A march command post is composed of the command group and accompanying communication personnel, equipment, and transportation.

In the advance guard battalion, the march command post will be at the head of the reserve. The march command posts of the battalions in the main body will be at the head of their respective battalions. The regimental march command post will be either at the head of the main body or moving by bounds in the interval between the main body and the rear element of the advance guard. In a foot march, all command posts will normally employ their tactical transportation and will move by short bounds.

Radio: In this situation, contact is not imminent. Control is more difficult and is more important to the commander than secrecy. In the absence of any special need for secrecy, radios would be employed between the regimental march command post and the march command posts of the battalions. They would also be employed between the regimental march command post and the regimental trains. In the event flank guards and the intelligence and reconnaissance platoon were used, they also would maintain radio communication with the regimental march command post. The low-power voice radio sets would be used for control purposes within each battalion and company column, and within the intelligence and reconnaissance platoon.

Wire: Wire would not be employed in this situation. The existing commercial line might be used by connecting phones to the line periodically in accordance with a prear-

ranged time schedule. This would be practicable in rear areas only.

Messenger: Both foot and motor messengers would be employed extensively by all units.

Visual: Visual signals, such as arm-and-hand signals would be used, as prearranged. Pyrotechnic signals could be used for emergency warning and for other uses as needed.

Regiment in Approach March

Situation: The 29th Infantry, making a route march on CLAYBURGH, 18 miles to the east of its bivouac area, has just learned of enemy forces entrenching some five miles east of its present location. Enemy reconnaissance and delaying units have just fired on the 29th Infantry advance

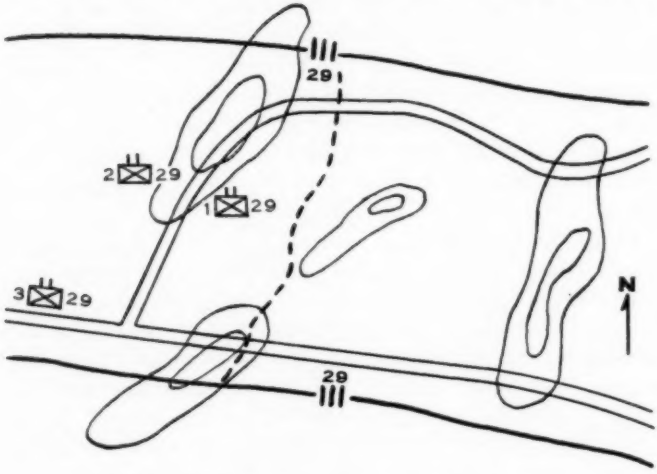


Figure 30.—Regiment in approach march.

guard. The regimental commander has decided to assume the approach march, having the advance guard battalion protect the advance by moving on a broad front, covering the regimental zone of advance. The second and third battalions will follow in echelon to the right rear. (See figure 30.)

Tactical considerations: The approach march begins when the imminence of contact forces the regiment to change from route march formation to one made up of several roughly parallel columns, and ends when the attack echelon crosses the line of departure.

Approach march formations may vary with the nature of the terrain, attitude of the enemy, and presence or absence of friendly covering forces to the front. Battalions may be disposed in column of battalions, wedge formation, inverted wedge, or, exceptionally, all battalions abreast. Frontal security may be provided by detailing an advance guard under regimental control to advance on a broad front or by dividing the regimental zone among leading battalions and charging each of them with security in its own zone.

Intensive reconnaissance is necessary during an approach march to gain early information and to verify information already at hand. The intelligence and reconnaissance platoon would be employed extensively for this purpose.

Any or all of the following measures may be prescribed as control measures:

Designating battalion zones or routes of advance.
Designating phase lines (successive march objectives) and hours for continuing the advance beyond these phase lines or conditions for such continuance.
Requiring periodic reports of progress.
Assigning assembly positions.
Designating axis of advance of each battalion command post. (Axis of signal communication.)
Use of connecting groups.

Requirement: As regimental S-3, what do you desire as signal communications in this situation to enable the regimental commander to control his regiment during the approach march.

Solution.—

In the approach march, as in the route march, units continue to operate march command posts, and in the same relative positions in the formation. The various means of communication will be employed in the same manner as during a route march, except that imminence of contact with the enemy may preclude the use of radio in some approach march situations.

REGIMENT IN ASSEMBLY AREAS

Situation: The 3rd Infantry, advancing on a broad front, has just received orders to move into assembly areas (see figure 31) preparatory to attacking to the east.

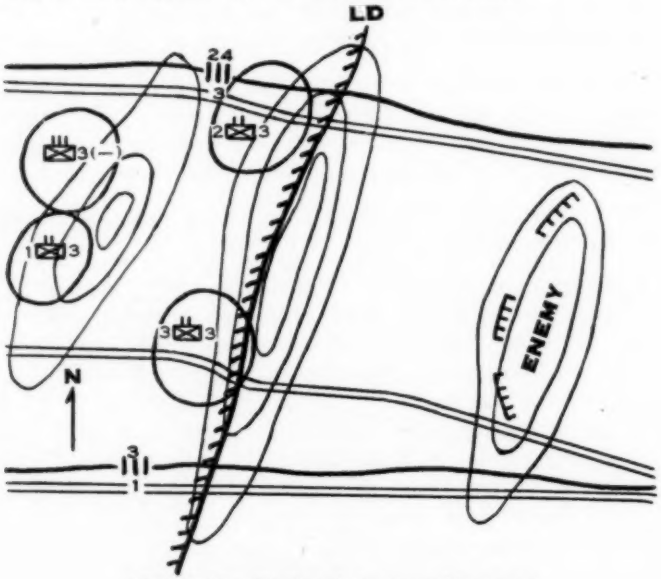


FIGURE 31.—Regiment in assembly areas.

Tactical considerations: When practicable, assembly positions (areas) are occupied preliminary to deployment for attack. In them the attack is organized and coordinated and extra ammunition is issued. Reconnaissances are made and orders issued before departure from assembly positions.

Units are kept sufficiently dispersed so that they do not present concentrated targets to air attack or artillery fire.

The higher commander may provide a covering force to protect the assembly position or the regiment may have to provide its own outpost. The regimental commander always causes local security detachments to be posted. Ordinarily each battalion is charged with providing local security for its assembly position. Security measures taken by battalions are coordinated by the regimental commander.

Requirement: As regimental S-3, your decision as to the signal communication your regimental commander will need to control his regiment in this situation.

Solution.—

Radio: Normally, radios will be silenced until either the attack jumps off or supporting artillery fire is laid down, after which times, the element of surprise is over and control is of vital importance.

Some argument has been advanced that if radios are used prior to moving into assembly areas and are silenced on moving into assembly areas, then the fact that an attack is forthcoming is revealed to the enemy. However, if the enemy has a strong enough defensive position to require us to make a coordinated attack, he surely knows that an attack against that position will eventually be made, even though he does not know exactly when. The fact that we have silenced our radios gives him no notice of when the attack will start. And, although radios have been employed up to this point, the enemy presumably has no knowledge as to our strength or disposition, and by silencing our radios we can keep these facts secret until the start of the operation. If radios were not silenced, the enemy could, by the use of radio locating equipment, plot our disposition in the assembly areas, and these dispositions usually approximate those for the coming attack.

Another reason for this silence is that it removes the danger of anyone inadvertently, as a result of improper

radio discipline, giving out information about the forthcoming operation over the radio, where the enemy could intercept it and act accordingly.

Units move to their respective assembly areas and remain there until just before the attack. Control is not difficult during this operation, and the use of radios is considered unnecessary.

Wire: Wire is not normally laid in assembly areas, as such, because the units are close together, and control is not sufficiently difficult to warrant its use. To lay wire would require unnecessary work for the linemen who will have plenty to do once the attack starts, and would consume wire which may be badly needed later on.

Wire may be laid while units are still in assembly areas, but this wire will be laid after initial command posts for the coming attack have been designated, and the wire will be for control of the coming attack, and not primarily for control while units are still in assembly areas.

Messenger: Both foot and motor messengers will be used extensively by all units.

Visual: Visual signals, such as pyrotechnic signals, will normally be confined to emergency warning signals from security units.

Regiment in Attack

Situation: The 4th Infantry, supported by a battalion of field artillery has been ordered to attack at dawn. (See figure 32.)

Tactical considerations: The attack begins when the leading elements cross the line of departure, and it terminates when the final objective of the unit is captured.

Attacks seldom progress exactly as planned. Flexibility should be maintained by commission of a part of the force initially and the retention of reserves so that they can be employed to further the attack.

In order to maintain control of the attack the regimental commander must keep himself fully informed of the situation, estimate its probabilities throughout all stages, and prepare tentative plans to meet those probabilities. Personal observation and reconnaissance are essential to the efficient exercise of command in an attack.

The attack order usually directs that a terrain objective, or a succession of terrain objectives be captured.

The direction of the attack, zones of action, formation, time of attack, plans for supporting fires, plans for security and *plans for control* of the unit must be formulated and announced prior to the attack.

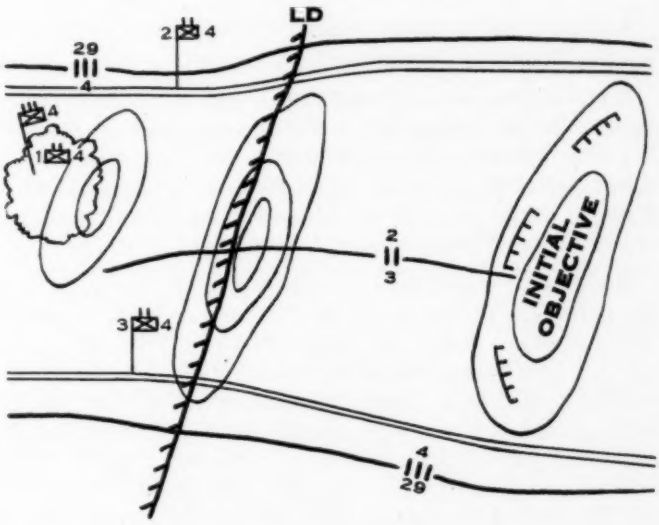


FIGURE 32.—Regiment in attack.

Requirement: As regimental S-3, your decision as to signal communications your regimental commander will need to control his regiment.

Solution.—

Control is most vitally needed when the initial units cross the line of departure and again when the objective is taken and the unit is reorganizing for the operation to follow.

The control system should be completely planned, installed and in operation prior to the time the leading echelons cross the line of departure.

The installation of this control system can begin as soon as the initial command post locations have been designated by higher headquarters, or the recommendations made by the communications officer for the location of the initial command posts have been approved, and permission to start these installations has been granted by S-3.

In short, all available means of communication will be used if necessary in an attack.

Radio: As previously mentioned, radios would normally be silenced until either the artillery commences its supporting fire, or the leading echelons cross the line of departure. When radio silence is lifted, all sets in the regiment come into use, down to and including the low-power voice sets of the rifle and heavy weapons companies.

Wire: One wire line will be laid by regiment to each of the battalions in the attacking echelon and to the regimental observation post. Battalions in the attacking echelon will lay wire to their observation posts. When the battalions move forward they extend these observation post lines as they move, laying the line through possible future battalion command post locations; thus, when the battalion command post displaces along this line the same wire, already laid, can be utilized. Normally, wire will not be laid to the reserve battalion. When this battalion is committed, it will either take over an existing wire line, or a new line will be laid to it. In some situations, it may be advisable to lay wire to the reserve battalion if their early commitment is contemplated, and if they are to be located at considerable distance from the regimental command post.

Wire communication from battalions to companies is not normally established in an attack unless a limited objective is contemplated.

Messenger: Both foot and motor messengers will be employed by all units.

Visual: Visual signals may be employed from front to rear using prearranged signals. They have extensive use as emergency signals.

General: Additional means of communication available in this situation are provided by the communication system of the supporting field artillery battalion. This system includes wire, radio, and messenger, and is closely tied in with the infantry communication system. In emergencies, either the infantry or the field artillery may use the other's system to meet their own needs.

Regiment in Pursuit

Situation: Following a successful attack, the 300th Infantry is pursuing the enemy toward the east and southeast. The 3d battalion of the 300th Infantry reinforced and motorized is making an encircling movement; the remainder of the regiment is continuing direct pressure on the enemy, and, unless otherwise ordered, is to advance only so far as to seize and hold the hill now occupied by the enemy. (See figure 33.)

Tactical considerations: The plan of the higher commander for an organized pursuit usually provides for immediate direct pressure by troops in contact with the enemy and for encircling maneuver by reserve units against the hostile lines of retreat. The forces engaged in each maneuver may be assigned directions, zones of action, and objectives.

In a pursuit, calculated risks are taken and the highest degree of leadership and initiative is essential.

Requirement: As regimental S-3, your decision as to the signal communications necessary to control the 300th Infantry and maintain communication with the encircling force in this situation.

Solution.—

Direct Pressure Force

The means of communication employed within this force are the same as in any normal fast moving attack; control will be most difficult, and all available means of communication will be used.

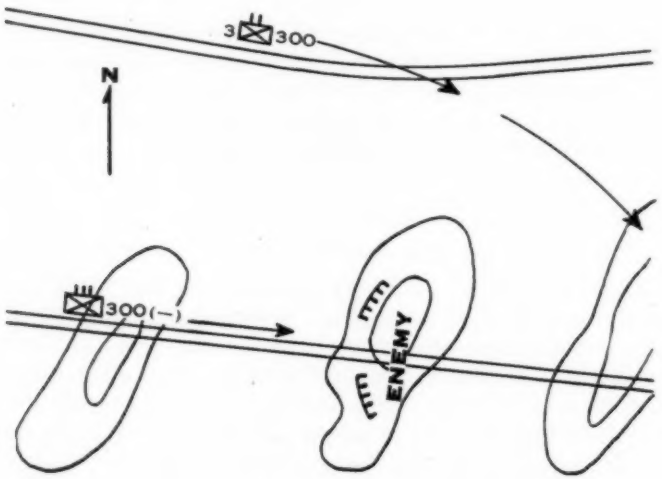


FIGURE 33.—Regiment in pursuit.

Encircling Force

Radio: Since this unit desires secrecy, it may not employ radio until it has made contact with the enemy. Here again the decision has to be made as to which is the more important, control or secrecy. In the event the contemplated movement may take this unit beyond the operating range of its organic radio equipment, a radio of greater power will normally be attached to it from the division signal company.

Wire: Because of the rapidity of movement by this force, wire would not be practical. Regimental headquarters might establish an advance message center as far forward as possible, in which case it would lay a wire line forward to this

advance message center. By relaying messages through this advance message center and by using messengers between the encircling force and this advance message center, communication between the encircling force and regimental headquarters can be maintained.

Messengers: Motor messengers will be almost the only means of communication employed prior to contact unless radio is used. As previously stated, they could be employed between the encircling force and an advance message center, and between the encircling force and the direct pressure force.

Visual: For security reasons, visual signals will normally not be employed until after contact has been made.

Regiment in Defense

Situation: The 29th Infantry has been forced to assume a defensive position (see figure 34) and await the arrival of additional infantry and artillery units now located 100 miles away. It is estimated that these reinforcements will arrive in approximately 60 hours.

Tactical considerations: Defensive doctrine contemplates the organization of a battle position to be held at all costs and the use of covering forces to delay and disorganize the advance of the enemy and to deceive him as to the true location of the battle position.

The defense is built around a series of tactical localities and comprises a zone of resistance consisting of a number of mutually supporting defense areas disposed irregularly, in depth and width, and each organized for all-around defense.

A line joining the forward edge of the most advanced organized positions is called the main line of resistance.

Between the main line of resistance and the regimental reserve area, company supports and battalion reserves organize the ground.

Outposts cover the battle position at a distance to prevent the occupying forces from being taken under observed hostile light artillery fire.

Whenever practicable, a mobile advanced covering force is employed in front of the outpost. Its mission is maximum delay of the enemy and to protect advanced artillery observation posts.

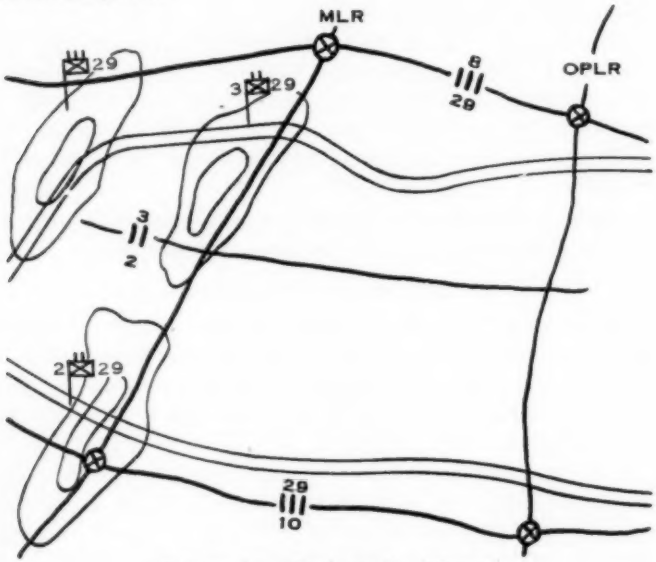


FIGURE 34.—Regiment in defense.

Requirement: As regimental S-3, your decision as to the signal communication necessary to control the 29th Infantry in this situation.

Solution.—

In the defense a more elaborate control system is necessary, and all available means are employed.

Radio: Radio might be employed by all units. Depending upon the prior use of the radios and the degree of secrecy which our force has managed to retain, radios may or may not be silenced until the enemy has made contact.

Wire: A very elaborate wire system will be installed. Regiment will lay two lines forward to each battalion occupying the main line of resistance, and a line to each of the

regimental observation posts. One line will be laid to the outpost battalion if a battalion is used to outpost the position. If the position is outposted by elements from front-line battalions, then these front-line battalions will lay lines to their outpost units. Economy of wire and labor can be accomplished by laying these lines through the contemplated battalion observation post so that the lines can be utilized later as observation post lines when the outpost elements withdraw. Each battalion along the main line of resistance will lay a line to each of its companies occupying the main line of resistance and to its observation post.

The following is considered a practicable method for using the battalion's BD-71 switchboard in defense. This board is capable of carrying six lines into the board itself.

2 Trunk lines from the regimental command post.
1 Lateral trunk line from the battalion on the left.
1 Lateral trunk line to the battalion on the right.
1 Party line to the battalion observation post and the two companies on the main line of resistance.
1 Local for use by command post personnel.

By means of the spare cord and plug carried in the board and a telephone EE-8-A, the remote control unit of the radio set SCR-284 can be made available through the switchboard to all telephones which have lines into the battalion switchboard.

Lateral lines will be laid between adjacent units down to and including the battalions. These lines are normally laid from left to right unless the next common superior directs otherwise. If time is available, wire will be laid to flank and secondary positions previously designated for occupancy by reserves. Alternate command posts should be established, and wire should be laid from the primary command post to the alternate command post to facilitate prompt movement in case of enemy artillery or air bombardment.

Messenger: Both foot and motor messengers will be used by all units.

Visual: Visual signals, either as prearranged messages, or warning signals, may be used.

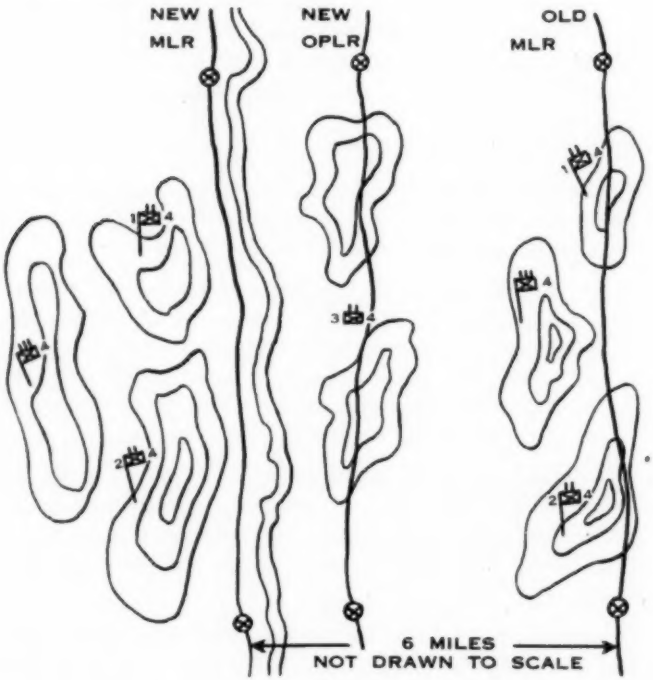


FIGURE 35.—Regiment in withdrawal.

REGIMENT IN WITHDRAWAL

Situation: After having held a defensive position for forty hours, the 4th Infantry has suffered a major penetration in its defensive position. The regimental commander has decided to withdraw under cover of darkness to await promised reinforcements. A defensive position, covered by a broad river, has been selected. (See figure 35.)

Tactical considerations: Retrograde movements are made for any one of the following purposes: to disengage from battle, to avoid battle in a disadvantageous situation, to draw the enemy into an unfavorable situation, to gain time without fighting a decisive engagement, to conform to movements of other troops, or to permit employment of part of the command elsewhere.

A withdrawal can best be accomplished under the cover of darkness and it is usually advisable to hold out until night to initiate a withdrawal.

A rearward position is designated on which resistance will be resumed or under the protection of which position the retrograde movement will be continued.

If a daylight withdrawal does become necessary, a general covering force will usually be detailed by higher authority with the mission of stopping, restricting, or diverting the hostile pursuit. In a night withdrawal, contact detachments are left behind to simulate normal activity and screen the withdrawal. The strength of this screening force should not exceed one third of the unit. The higher commander also provides for a covering force for the rear position to which withdrawal is made.

Requirement: As regimental S-3, your decision as to the signal communications necessary to control the 4th Infantry in this withdrawal.

Solution.—

Radio: Radios will continue in use in the forward positions. Radio silence will be in effect in the rear position until the enemy has again made contact. Additional radios might be left in operation in the forward position as a subterfuge, in order to deceive the enemy and gain additional time. Sufficient personnel should be left with instructions to withdraw these sets or to destroy them prior to capture by the enemy.

Wire: One line should be laid from the regimental command post in the forward position to the new regimental command post in the rear position. An entire new wire system should be laid in the rear position. This system will be generally the same as in any normal defense. The covering force will use the old system in the forward position, and upon withdrawing, will destroy as many of the existing wire lines as possible.

Messengers: Both foot and motor messengers will be used by all units.

Visual: Visual signals might be used in an emergency or as a prearranged signal from the covering force to the rest of the regiment.

CHAPTER 9

Combat Training
The Cannon Platoon In Attack
Map Exercise

1. REFERENCES AND PURPOSE.—*a. References.*—FM 7-20 and FM 7-40.

b. The purpose of this exercise is to illustrate:

(1) The tactical employment of a cannon platoon in support of an infantry battalion in the attack.

(2) The execution of troop-leading procedures within a cannon platoon engaged in offensive combat.

2. SITUATION.—*a.* Map A (figure 36).

b. 1st Infantry.—Yesterday, covering forces of a large Blue unit advancing south with GREGORY ROAD as the axis of advance, encountered hostile patrols north of the area shown on Map A, drove them south and uncovered a hastily organized hostile defensive position along the general line south of *Roberts Creek,* shown on Map A. The 1st Infantry, part of the Blue force, moving south on GREGORY ROAD, went into battalion assembly areas this morning on the east side of GREGORY ROAD in the wooded low ground approximately 900 meters north of RJ 606 (72-27). Colonel 1st Infantry received the division order for a coordinated attack and explained to his staff his tentative plan for the regimental attack. He directed that Captain Howitzer Officer reconnoiter the regimental zone of action and meet him at 1145 to make recommendations for use of the Cannon Company in support of the regiment. Colonel 1st Infantry then made his reconnaissance and at 1200 hours, issued his attack order at a point 250 meters northeast of RJ 606 (on the reverse slope of Hill 621).

c. Cannon Company.—At 1230 today Captain Cannon Company in the vicinity of RJ 606 issued his attack order based on the regimental attack order. Extracts pertinent to the employment of the 1st Platoon, Cannon Company, are as follows:

"The 1st Infantry, in conjunction with the 2d Division on the right and the 3d Infantry on the left, attacks at 1500 today to capture the high ground between CR 568 (73-24) and Hill 612 (72-24).

"Line of departure, boundaries and regimental objectives are shown on Map A.

"The 1st and 2d Battalions will be in the attacking echelon, 1st Battalion on the right.

"The 1st Battalion, making its main effort on the right, will capture Hills 581 (73-26) and 593 (72-26). It will continue the attack to capture Hills 634 (72-25) and 613 (72-25) and take that part of the regimental objective in its zone of action.

"The 2d Battalion will * * *

"The 1st Field Artillery Battalion will be in direct support of the 1st Infantry and the 4th Field Artillery Battalion will be in general support. A series of prepared artillery fires will be delivered by the 1st Field Artillery Battalion on forward hostile positions from H-hour to H plus 10.

"The 1st Cannon Platoon will be in support of the 1st Battalion, 1st Infantry. Lieutenant 1st Platoon, you will report at 1330 to Lieutenant Colonel 1st Battalion who will then be in this vicinity. I will point out the battalion boundaries to you on the ground. The right boundary of the 1st Battalion runs along the edge of this clearing and extends southward to include Hill 593. The left boundary, about 800 meters east of here, extends southward to include Hill 581. The line of departure is this ridge which is held by our covering forces. Check for possible firing positions in the area north of SIMMONS ROAD just east of here.

"The 2d Cannon Platoon will * * *.

"The 3d Cannon Platoon, in general support of the regiment, will * * *.

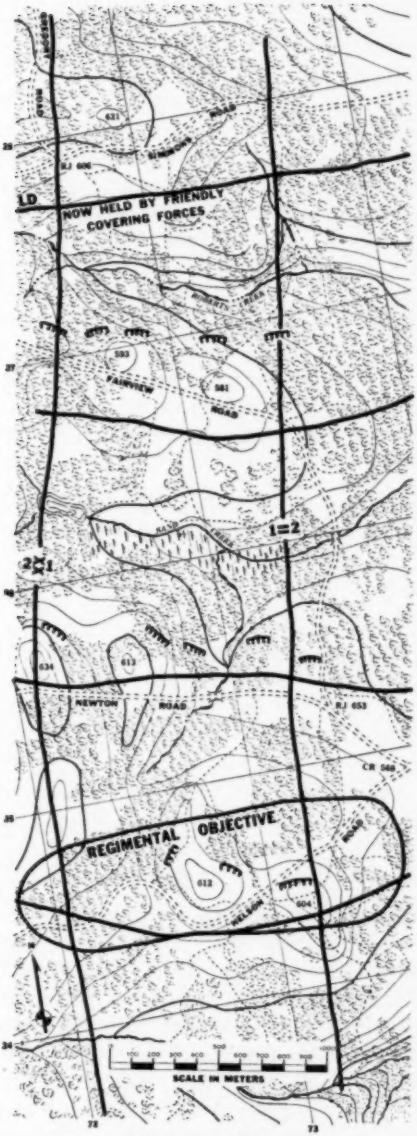


FIGURE 36.—Map A.

"Cannon platoons are released immediately to platoon leaders in the company assembly area.

"Company ammunition supply point in the vicinity of Company Command Post. Regimental ammunition supply point—on GREGORY ROAD 8 kilometers north of RJ 606.

"Company Command Post in the vicinity of the Regimental Command Post which is 500 meters east of an old house located on GREGORY ROAD, 1 kilometer north of RJ 606."

3. FIRST REQUIREMENT.—*a.* What personnel would Lieutenant 1st Platoon have with him when he reported to receive the cannon company attack order?

b. Actions and orders of Lieutenant 1st Platoon from the time he receives the company attack order until the time he reports to Lieutenant Colonel 1st Battalion at 1330.

4. A SOLUTION OF FIRST REQUIREMENT.—*a.* The platoon leader in coming forward to receive the company attack order, would normally bring with him his agent corporal, instrument operator, radiotelephone operator, and messenger.

b. After receiving the company order, Lieutenant 1st Platoon makes a brief map study, plans his reconnaissance and selects Hill 621 as a tentative observation post. Here he determines the azimuth of the general direction of attack and then leaves the instrument operator with the following instructions, "We will need the aiming circle on our reconnaissance, so take my compass and the range finder and secure azimuths and ranges to those prominent terrain features [Hills 593 and 581; RJ 653 (73-25)]."

He then continues east along the ridge to the left boundary of the battalion, looking for observation posts, possible targets, location of friendly troops and supplementary positions from which direct fire might be delivered should it become necessary. He moves west into the comparatively open area mentioned by the company commander as a possible location for firing positions. At the point where the two trails meet to form the point of a triangular clearing in the woods northeast of RJ 606 (73.2-28.2), the platoon

leader gives the messenger the following order: "Go back on this trail to the assembly area and tell the platoon sergeant to move the platoon forward to this point. You will guide him forward and I will meet him here."

Lieutenant 1st Platoon, accompanied by his agent corporal with the aiming circle, continues his reconnaissance, looking for firing positions, both primary and alternate; cover positions; location for the ammunition truck and trailer; routes of ammunition supply and routes forward.

He returns and meets the platoon at the designated point, allowing himself enough time to meet Lieutenant Colonel 1st Battalion at 1330. He then issues the following orders: "Platoon Sergeant, move the platoon to a firing position in the edge of these woods and parallel the howitzers on azimuth 3500 mils. Place the ammunition truck and trailer in the woods approximately 200 yards in rear of your position. I will take the chiefs of section forward with me.

"Agent Corporal, you remain here and assist the platoon sergeant. Keep the aiming circle with you until the sergeant has laid the platoon parallel, then bring the aiming circle and one cannoneer from each section, each with a sound-powered telephone and a reel of wire, and meet me at the point where we left the instrument operator.

"Chiefs of Section, come with me."

The platoon leader, accompanied by his chiefs of section and the messenger, returns to his observation post on Hill 621. There he leaves the chiefs of section to be oriented by the instrument operator while he reports to Lieutenant Colonel 1st Battalion at 1330.

5. DISCUSSION.—A reconnaissance of the area indicates that a position at the point shown on Map B (figure 37) appears best suited for platoon fires; hence this locality is chosen by the platoon leader as the initial firing position area for his platoon. From this point, clearance of the mask to the front can be easily accomplished and the trees on the ridge to the front will not interfere as they would from almost any other possible position area. The position affords sufficient area for the proper dispersal of weapons which, for platoon firing, should be 100 yards if possible. While

conducting his reconnaissance the platoon leader is making maximum use of members of his command group. Preparation for firing is started immediately; the instrument operator obtaining data, the agent corporal assisting on reconnaissance by checking mask clearance at various possible positions, and the platoon sergeant leading the platoon forward from the assembly area.

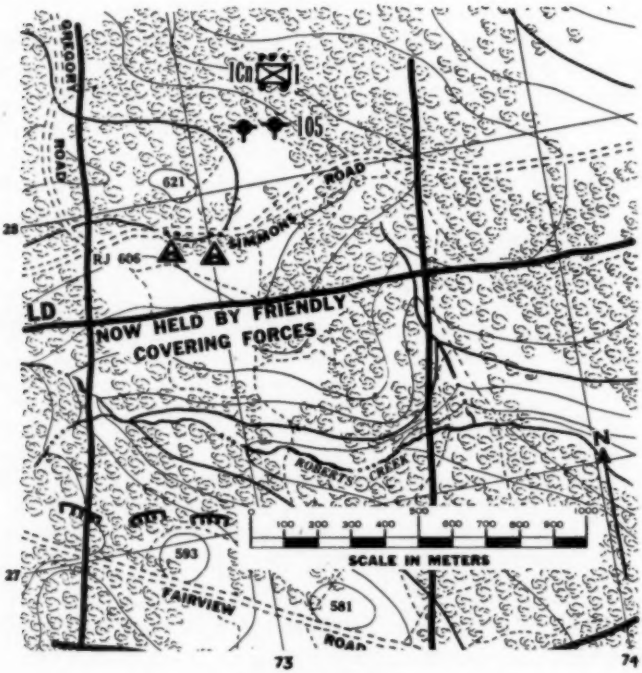


FIGURE 37.—Map B.

6. SECOND REQUIREMENT.—Actions of the platoon sergeant from the time he meets the platoon leader until the time of the initial firing.

7. A SOLUTION OF SECOND REQUIREMENT.—Upon receiving the platoon leader's order, the platoon sergeant moves the platoon into the selected position area where he

designates howitzer positions and orders, "Sections begin preparation for firing. Artillery mechanic, check the pieces. Driver, place ammunition truck and trailer in woods 200 yards in rear of our position. Be sure they are concealed from both ground and aerial observation and separated by at least 100 yards."

As soon as the howitzers are in their firing positions the sergeant lays them parallel on azimuth 3500 mils as ordered by the platoon leader. He reports the greater angle of site to the mask as measured from both section positions, the range gun-mask, the platoon front, and that the platoon is ready for firing. He makes this report to the platoon leader as soon as telephone communication is established with the observation post. The platoon leader then computes the minimum quadrant elevation for either mask or troop clearance and gives this data to the platoon sergeant. The platoon sergeant supervises the firing of the platoon as ordered by the platoon leader from the observation post.

8. DISCUSSION.—In most situations, the actions taken by the platoon sergeant will be largely standing operating procedure of the platoon. He will supervise the movement of the platoon into position, see that the pieces are laid parallel on the given azimuth, report the platoon data and so on as given above. Dispersal and camouflage of vehicles should also be routine procedure with truck drivers, but it is one of the duties of the platoon sergeant to insure that these SOP duties are not neglected.

This requirement is intended to stress the value of using standing operating procedure as much as is practicable in the training and tactical employment of a cannon platoon.

9. SITUATION, CONTINUED.—Lieutenant 1st Platoon has prepared his plan for the employment of his platoon and now returns to meet Lieutenant Colonel 1st Battalion.

10. THIRD REQUIREMENT.—You are Lieutenant 1st Cannon Platoon. State the plan which you submit to the battalion commander for the employment of your platoon in support of the attack.

11. A SOLUTION OF THIRD REQUIREMENT.—Lieutenant 1st Platoon proposes that his platoon be employed initially to deliver platoon fire from an indirect firing position in the edge of the woods, approximately 500 meters northeast of RJ 606. From that position his platoon can deliver fires into any part of the battalion zone of action. He also states that his platoon is now occupying that position and that alternate positions, supplementary direct firing positions, and observation posts have been selected.

12. DISCUSSION.—While it may seem that the platoon leader is making unwarranted assumptions in selecting and occupying a position before hearing the battalion attack order, he has actually carried out certain troop-leading functions which will insure the most effective employment of his platoon in this particular situation. By using the time available to him from receipt of the company order until he reports to the battalion commander, he has made a careful selection of positions, moved his platoon to its initial firing position area, taken steps to have firing data computed, and has insured that his platoon will be prepared to provide the greatest possible support at the proper time. These troop-leading functions were being performed within the platoon while the battalion commander was making his own reconnaissance and preparing the battalion plan of attack. Should the battalion commander wish any changes made in the support plan of the 1st Cannon Platoon, there is still time available between the issuance of the battalion attack order and the time of attack.

13. SITUATION, CONTINUED.—Lieutenant Colonel 1st Battalion approves the plan for the employment of the cannon platoon and then issues his attack order, extracts of which are given below:

"Boundaries and line of departure are shown on map.

"We attack with companies A and B abreast, Company A on the right; Company C will be in reserve in the woods northeast of RJ 606.

"Two emplaced enemy machine guns have been located on the northeast slope of Hill 581. S-2 will point them out to you. As soon as the artillery preparatory fires are lifted, I want the howitzers to engage those guns if they haven't been knocked out. The howitzers will also be prepared to place immediate fire on other hostile supporting weapons in the vicinity of Hill 581 which are not neutralized or destroyed by the artillery. I also anticipate the use of cannon fires against the same type weapons in the wooded area on Hill 593."

14. FOURTH REQUIREMENT.—Actions and orders of Lieutenant 1st Platoon from the time he receives the battalion attack order until H-plus 10 (when the artillery concentration is lifted).

15. A SOLUTION OF FOURTH REQUIREMENT.—Lieutenant 1st Platoon immediately contacts S-2 who points out the location of the hostile machine guns referred to by the battalion commander.

He then moves back to his observation post, where he has left his instrument operator and the chiefs of section. The agent corporal and the two cannoneers with the telephones and reels of wire should also have reached the observation post by this time. The platoon leader then issues the following orders:

"Instrument operator, see those two machine-gun emplacements on that hill? Good, get me the azimuth and range to each of them. Get the aiming circle from the agent corporal.

"Agent Corporal, you report to Lieutenant Colonel 1st Battalion as liaison agent for the platoon.

"Chief of Section 1st Section, establish your observation post on this hill about 50 yards to our right flank.

"Chief of Section 2d Section, establish your observation post on this hill about 100 yards to our left flank.

"Get your wire in as quickly as possible.

"Messenger, go back to the platoon and tell the platoon sergeant to have 30 rounds of ammunition from the platoon

ammunition truck prepared for charge 1 and distributed equally to the sections."

The platoon leader then assures himself that the chiefs of section are oriented and can recognize the key terrain features. He acquaints them with the situation and points out their supplementary direct firing position areas. When the instrument operator has secured the requested data, he computes the firing data for the initial target. He also acquaints the platoon sergeant with the situation at the first opportunity and if time permits, checks the actual occupation of the firing position and verifies the initial lay of the pieces.'

16. DISCUSSION.—Here again the platoon leader practices good troop-leading procedure by employing members of his command group to assist him in the execution of the final steps in preparing his platoon for its support mission.

When the artillery preparatory fires are lifted, the platoon leader can conduct the initial fires of his platoon from either one of the section observation posts. The agent corporal maintains liaison between the battalion commander and the platoon leader and transmits requests for fires from the battalion commander to cannon observers.

17. SITUATION, CONTINUED.—The attack has jumped off and is progressing satisfactorily. The 1st Cannon Platoon has neutralized the enemy machine guns on Hill 581 and has engaged several other targets.

18. FIFTH REQUIREMENT.—Discuss a plan for the resupply of howitzer ammunition for the 1st Cannon Platoon.

19. A SOLUTION OF FIFTH REQUIREMENT.—The 2½-ton ammunition truck and 1-ton trailer of the platoon will be kept near enough to the howitzers of the platoon to be convenient to both sections and yet be sufficiently removed to provide dispersion. When the ammunition on the truck has been nearly exhausted, the remaining rounds should be removed and placed on one of the prime movers or the trailer. The ammunition truck can then be sent back

for refilling and while it is absent, a fairly good supply of ammunition remains convenient to the howitzers of the platoon. The emptied ammunition truck is dispatched to the company ammunition supply point from which it is guided or conducted to the regimental ammunition supply point for refill.

Should displacement become necessary during the absence of the ammunition truck, one of the prime movers may have to be used to shuttle the trailer forward. A guide can be left to direct the ammunition truck to the advance area upon its return after refilling. At times, the platoon ¼-ton truck may be used to move a howitzer for short distances or to shuttle ammunition to a firing position.

20. DISCUSSION.—The provision of an adequate and continuing supply of ammunition within the platoon affords opportunity for the exercise of considerable initiative and ingenuity on the part of cannon platoon personnel. Plans for the replenishment of ammunition should provide for the least practicable amount of travel, transloading of vehicles and hand-carrying. Resupply may at times be effected by the exchange of an emptied vehicle of one platoon for the filled vehicle of another platoon. Also, an emptied platoon truck may at times be exchanged for a filled regimental vehicle at the regimental ammunition supply point.

Ammunition that is dumped on the position should be kept in pits to protect it from enemy fire. Personnel employed to hand-carry ammunition must be trained to use covered and concealed routes, to observe strict camouflage discipline, and especially not to make tracks which might disclose the positions of the howitzers.

21. SITUATION, CONTINUED.—The 1st Battalion is advancing and it is apparent that the capture of Hills 581 and 593 is imminent. Platoon Leader 1st Cannon Platoon has just received the following message from Captain Cannon Company: "1st Platoon will displace forward as soon as necessary to provide continuous support to the 1st Battalion. 3d Platoon will not be able to support the 1st Battalion during your displacement. Notify me of your new location."

22. SIXTH REQUIREMENT.—Give the plan for displacement of the 1st Cannon Platoon (including the plan for prior reconnaissance) when the 1st Battalion has captured Hills 581 and 593.

23. A SOLUTION OF SIXTH REQUIREMENT.—While the 1st Battalion is advancing on Hills 581 and 593, the platoon leader makes a visual reconnaissance of the ground forward of his observation post for possible routes of displacement for his platoon when such displacement becomes necessary. He leaves the chiefs of section to conduct the firing of their individual sections and, taking the instrument operator and a messenger with him, he works his way as far forward as possible looking for firing positions and routes forward to these positions. He contacts the unit leaders of the forward elements of the battalion and obtains any information which may be of value to him. He will be particularly concerned with the footing to be found in the bottom of the *Roberts Creek* draw, for he knows that, as the attack progresses, it will be necessary for him to get his vehicles and weapons across it.

Upon his return, during lulls in the firing, the platoon leader finds an opportunity to talk to the platoon sergeant and the chiefs of section, either collectively or individually, and gives them a warning order relative to displacement.

"As soon as the 1st Battalion has captured those two hills, we must start our forward displacement. I am going forward now and when I signal from that (pointing) clearing on the north slope of Hill 581, I want the 1st Section to displace through those woods along the left boundary to *Roberts Creek*. I will leave a messenger there to show them their position area. As soon as the 1st Section is in position and their observation post established, I will signal from the same location on Hill 581 to have the 2d Section begin displacement.

"Platoon Sergeant will remain here in charge of the rear echelon.

"The 2d Section will cover the advance of the 1st Section and be especially watchful for a counterattack which may come from either flank.

"When I signal the 2d Section forward, use the same route as the 1st Section as far as *Roberts Creek* where the messenger will meet it and guide it into position. The ammunition truck and trailer will displace with the 2d Section."

24. DISCUSSION.—When friendly troops have captured the terrain feature to the front, the continuation of close support and protection of the attacking rifle units will usually require the prompt displacement of elements of the platoon. At times it may be necessary to move only the observation posts to continue this close support. However, when observation posts have been moved beyond practicable range of communication, the entire platoon must be displaced to a new position area.

The Cannon Company normally displaces by platoon. Such displacement must be coordinated in order that close support of the rifle units may be continuous. In this situation, the 3d Platoon of the Cannon Company is in support of the regiment as a whole, and the tactical situation might have permitted the 3d Platoon to provide cannon support of the 1st Battalion, while the 1st Platoon, Cannon Company, displaced. If this were possible, the 1st Platoon could displace by platoon, thereby saving time and facilitating control of the platoon by the platoon leader. According to the message received from the company commander, however, the 3d Platoon will be unable to cover this displacement and 1st Platoon will have to displace by section. Cannon support of the 1st Battalion is the platoon's mission, and accomplishment of that mission will require early displacement of the platoon.

When given a mission-type order to support a particular unit, the platoon frequently will be displaced to a new position on the initiative of the platoon leader, unless restrictions limiting displacements have been prescribed by the company order. Such displacement may be accomplished by platoon or by section echelon. Therefore, the platoon leader must prepare a plan (or plans) for displacement as

soon as possible and move forward early to reconnoiter, select observation posts and prepare fire data prior to the displacement of the weapons. He takes with him selected personnel from his command group and any additional personnel (to act as guides) that might be needed. Improvised visual signals can often be used to save time and the use of messengers when displacing.

25. SITUATION, CONTINUED.—The 1st Battalion has captured Hills 581 and 593. The 1st Section, 1st Platoon, is in a position in the vicinity of * * *, and the 2d Section is now displacing forward. Lieutenant 1st Platoon has just completed his reconnaissance and is near the edge of the clearing north of Hill 581 waiting for Chief of Section 2d Section. He has already given his orders to Chief of Section 1st Section.

Adjacent units are generally abreast of the 1st Battalion.

26. SEVENTH REQUIREMENT.—Indicate on the map:

a. The firing position of each howitzer of the 1st Platoon.

b. The observation post of each section.

c. Location of the platoon ammunition supply point (point to which ammunition truck and trailer are to be displaced).

27. A SOLUTION OF SEVENTH REQUIREMENT.—*a.* See Map C (figure 38).

b. See Map C (figure 38).

c. See Map C (figure 38).

28. DISCUSSION.—*a.* Both howitzers have been placed in position in the southern edge of the woods on the north side of *Roberts Creek.* From this position, fires can be dedelivered into any part of the battalion zone of action. This position affords ample space to allow the two howitzers to be separated by an interval sufficient to minimize the possibility of damage to both by a single enemy shell. The woods in which the platoon is located afford concealment from aerial observation and FAIRVIEW ROAD ridge provides defilade from ground observation and from enemy

flat-trajectory fires. This position was occupied by displacing the 1st Section forward while the 2d Section remained in position prepared to engage any targets which

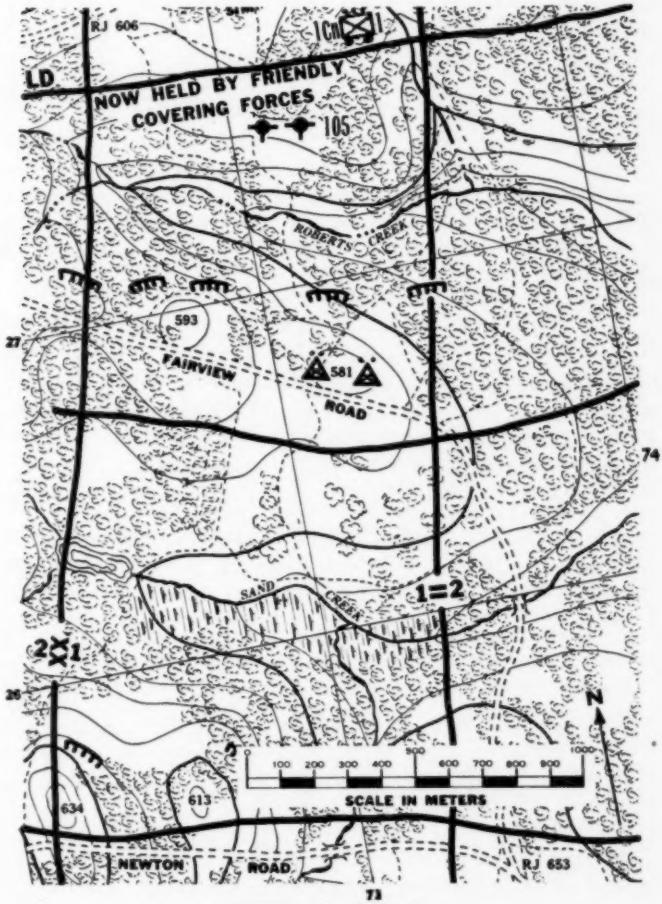


FIGURE 38.—Map C.

might appear to the front. After the 1st Section was in position, had laid wire to the observation post, and was prepared to fire, the 2d Section moved forward. The platoon

will fire by section as long as necessary but as soon as an opportunity occurs, the platoon sergeant will lay the pieces parallel, to permit either platoon or section fire as needed.

Should the need for direct fires arise, positions are available along FAIRVIEW ROAD. A howitzer can be towed to the rear of such a position and the prime mover kept in defilade by turning around and backing the piece into position near the crest of the hill. The gun crew would then have to manhandle the weapon the rest of the way into position. Speed in going into action, firing, and moving to a cover position or an alternate firing position is essential in the employment of a howitzer for direct firing because of the exposure of both gun and crew to enemy observation and fire during direct firing.

b. For the observation of fires from the selected positions, the two section observation posts have been located on Hill 581 as shown on Map C (figure 38). From these positions the entire battalion zone of action may be observed, making possible the provision of close support to the front-line troops by permitting fire on targets either at close or long ranges.

While Hill 581 offers little concealment from enemy observation, it is necessary to place the observation posts there to obtain maximum observation.

c. The ammunition truck and trailer are located in the woods about 200 yards to the rear of the platoon and are separated by 100 yards or more. This position is easily accessible to both howitzers, affords cover and concealment from the enemy, is far enough removed from the pieces to give sufficient dispersion, and has an excellent route to the rear.

29. SITUATION, CONTINUED.—The 1st Section now occupies the position as given above. (See Map C, figure 38.)

30. EIGHTH REQUIREMENT.—Give the actions and orders of Chief of Section, 1st Section, from the time he arrived at the firing position until his section is ready to fire.

31. A SOLUTION OF EIGHTH REQUIREMENT.—Chief of Section, 1st Section, places his weapon in the designated position, laying the howitzer in the approximate direction of the center of the zone of action. Using his compass, he determines the azimuth on which the tube is laid. He designates a position for the prime mover and insures that the driver is prepared to provide antitank protection with antitank grenades.

Meanwhile, other members of the section are camouflaging the howitzer and unloading a quantity of ammunition at the position.

Chief of Section, 1st Section, then gives the following order: "I am going forward to meet the platoon leader on that hill (pointing to Hill 581) and establish the observation post. Howitzer is laid on azimuth 3700 mils. Measure the angle of site and the range to mask. Prepare 20 rounds for charge 1. Notify me when there are only 10 rounds left in section. Cannoneer No. 7, you accompany me with a telephone and a reel of wire."

Chief of Section then moves forward to meet the platoon leader. As soon as his observation post is pointed out to him by the platoon leader, he directs the cannoneer to lay telephone wire back to the howitzer position. When communication has been established and the gunner has reported the angle of site and range to mask, the chief of section computes the minimum quadrant elevation for mask or troop clearance and notifies the gunner. Next, if the situation permits, he selects a base point, usually a conspicuous object in the approximate center of his sector of fire, and registers on that point. Having registered on the base point, the chief of section directs the gunner to mark new base deflection and is then prepared to place accurate fire on any point within the assigned sector in the minimum of time.

32. DISCUSSION.—The actions of a chief of section in placing his unit in a firing position and establishing communication with a selected observation post will vary in

different situations. The steps taken by the chief of section in this instance cover necessary preparations for action and suggest a workable solution for most situations.

33. SITUATION, CONTINUED.—Chief of Section, 1st Section is observing to the front and detects a hostile antitank gun located on the north slope and near the crest of Hill 634.

34. NINTH REQUIREMENT.—Give the actions taken by Chief of Section, 1st Section, at this time.

35. A SOLUTION OF NINTH REQUIREMENT.—Chief of Section, 1st Section, with his binocular, measures the shift from the base point on which the howitzer is laid to the antitank gun on Hill 634 and issues his fire order to engage the target.

36. DISCUSSION.—Chief of Section, 1st Section, should place fire on this new target promptly, as he can quickly measure the deflection shift and should already have determined the range to Hill 634 as it is a conspicuous terrain feature.

37. SITUATION, CONTINUED.—The attack has continued successfully. The front-line units of the battalion have reached the next ridge line to the south. (Ridge just north of NEWTON ROAD, formed by Hills 634 and 613 and the high ground adjacent thereto). Lieutenant 1st Platoon receives the following radio message from Captain Cannon Company: "1st platoon will displace forward. Platoon leader will precede platoon along trail in edge of woods in center of battalion zone of action, meet Reconnaissance Officer at *Sand Creek*, and be guided to new position area. 3d platoon will provide support to the 1st Battalion during your displacement. Notify me as soon as platoon is ready to fire from new position."

38. TENTH REQUIREMENT.—Actions of Lieutenant 1st Platoon and his plan for the displacement of the platoon.

39. A SOLUTION OF TENTH REQUIREMENT.—Lieutenant 1st Platoon issues the following warning order to the chiefs of section and platoon sergeant: "I am going forward with the instrument operator, messenger, and radiotelephone operator to meet the reconnaissance officer. We will proceed along the edge of those woods (pointing to the edge of the woods at the center of the battalion zone of action). The platoon will go out of action immediately and proceed along the same route to *Sand Creek* where a guide will meet the platoon and direct it into position."

40. DISCUSSION.—The platoon leader, before going forward to meet the reconnaissance officer, issues brief but definite instructions to his subordinates to insure that the platoon will displace promptly along the proper route. In order to complete the displacement without delay, the platoon leader precedes his unit, meets the reconnaissance officer, locates the new position, and sends one of his assistants to meet and guide the platoon into position. The displacement of the platoon is facilitated by the assistance provided by the reconnaissance officer and other personnel from the company command group.

Displacement by platoon is normal and will usually be controlled by the company commander in order that continuous support of the attacking echelon may be maintained.

The platoon sergeant will supervise the actual movement of the howitzers and vehicles, including the ammunition truck and trailer. He will insure that strict march discipline is maintained and that the displacement is accomplished with the least possible delay.

41. SITUATION, CONTINUED.—Lieutenant 1st Platoon has met the reconnaissance officer who has informed him that there are no suitable platoon firing positions on either side of *Sand Creek*, but that he has located separate positions for each of the sections. The platoon leader learns that the units on each flank of the battalion are generally abreast. He was also informed by the S-2 that hostile elements have withdrawn to the high ground to the south (Hills

612 to 604) to positions commanding the battalion zone of action.

42. ELEVENTH REQUIREMENT.—Locate on the map, the position area selected for each section and for the ammunition vehicles of the 1st platoon.

43. A SOLUTION OF ELEVENTH REQUIREMENT. —See Map D, (figure 39).

44. DISCUSSION.—It is preferable to employ the howitzers from a platoon firing position, permitting the conduct of fire from a single observation post and the massing of the fires of both weapons on a single target. However, platoon firing positions affording adequate cover and concealment for the howitzers and sufficient mask clearance for their fires may not always be available. In this situation the nature of the terrain on both sides of *Sand Creek* is such that no suitable platoon firing positions are available. There is a possible platoon position in the edge of the woods on the northeast slope of Hill 634. However, in order to obtain the proper interval between pieces, one howitzer would be exposed to enemy observation from the high ground to the south. Therefore only one of the howitzers can be located in this area.

Because of the heavy growth of trees in the rest of the battalion zone of action on the south side of *Sand Creek*, the other howitzer of the platoon has been located on the north side of the creek. This area also provides defilade and concealment for only one weapon.

In this situation, each section is assigned a sector of fire and the fires of the sections are conducted from separate observation posts.

Routes for displacement must always be carefully selected and reconnoitered. *Sand Creek* draw is swampy and heavily wooded. Any attempt to cross within the battalion zone of action would require time-consuming preparation. However, examination of the map reveals that a better route extending only a very short distance into the zone of action of the unit on the right, is available around the west end of the pond in *Sand Creek* draw.

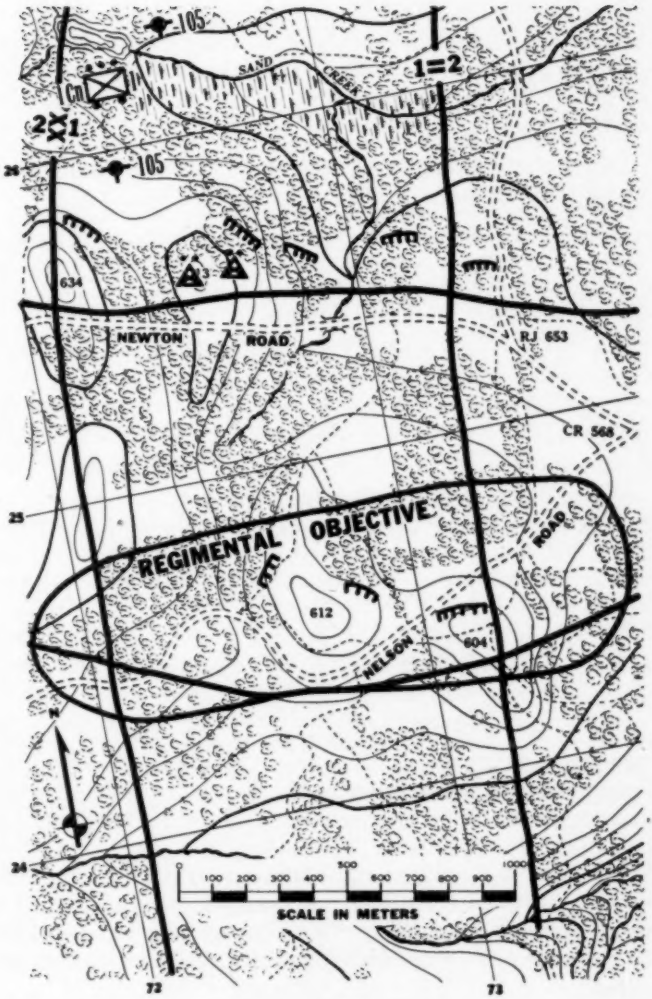


FIGURE 39.—Map D.

45. SITUATION, CONTINUED.—1st Cannon Platoon, under supervision of the platoon sergeant, went out of action and moved forward along the prescribed route of displacement. When about half way to *Sand Creek*, the prime mover of the 1st Section ran into an eroded ditch and was damaged beyond immediate repair. The howitzer was not damaged.

46. TWELFTH REQUIREMENT.—Actions and order, of Platoon Sergeant, 1st Platoon, in this situation.

47. A SOLUTION OF TWELFTH REQUIREMENT.—The platoon sergeant issues the folllowing orders: "Cannoneer No. 6, go back to the ammunition truck and guide it up here at once."

He orders, "Uncouple the howitzer from the prime mover."

Upon arrival of the platoon ammunition truck the trailer is uncoupled, the howitzer coupled to the truck, and the following order given to Chief of Section, 1st Section:

"As soon as your howtizer has been placed in its new position, unload 30 rounds of ammunition from the ammunition truck and send the truck back to pick up and bring forward its trailer and the ammunition from the damaged prime mover."

The platoon sergeant also sends a message to Lieutenant Platoon Leader telling him of the plan which he is placing in operation.

48. DISCUSSION.—Minor accidents must not prevent weapons moving according to plan. Not only must the howitzer reach its destination but a quantity of ammunition must be available to it upon arrival so immediate fires can be delivered if required. The proximity of the platoon ammunition truck enabled the platoon sergeant to solve this problem with the minimum of delay. Also, unexpended ammunition must be recovered whenever possible, therefore the ammunition from the damaged prime mover was salvaged.

Subordinate leaders must be trained to use initiative when unexpected situations occur, but higher commanders must be notified promptly of developments. The platoon

sergeant set his plan into operation immediately and Lieutenant Platoon Leader, being informed of the situation, could take steps to render assistance or improve the plan.

49. SITUATION, CONTINUED.—The 1st Platoon has completed its displacement and occupied assigned areas as above. Lieutenant 1st Platoon received information that an enemy tank attack was imminent.

50. THIRTEENTH REQUIREMENT.—Actions and orders of Lieutenant 1st Platoon at this time.

51. A SOLUTION OF THIRTEENTH REQUIREMENT.—Lieutenant 1st Platoon telephones the platoon sergeant the following orders: "Sergeant, be prepared for a possible tank attack. Be sure that antitank ammunition (HE, AT) is in readiness at the guns, and that personnel with rifles, carbines, and grenades are posted near the vehicles and weapons to provide close-in protection.

"Since the 1st Section is the more vulnerable to mechanized attack, give the rocket launcher from the ammunition truck to that section."

52. DISCUSSION.—The steps which were taken in the above solution were routine and the requirement emphasizes that personnel of howitzer sections must be trained to use all available weapons in engaging enemy tanks. In addition, there should be a rocket launcher team specifically designated within each section. The employment of the rocket launcher in platoon headquarters can then be delegated by the platoon leader to either team for the antimechanized protection of elements of the platoon.

53. SITUATION, CONTINUED.—The tank attack did not materialize. The 1st Battalion has reached NELSON ROAD and has captured Hills 612 and 604 (that portion of the regimental objective within its zone of action).

The 2d Battalion on the left and the unit on the right are generally abreast of the 1st Battalion.

Lieutenant 1st Cannon Platoon left the platoon sergeant in charge and started forward on reconnaissance soon after the front line of the 1st Battalion moved south of NEWTON ROAD. He selected routes forward and position areas for his unit.

54. FOURTEENTH REQUIREMENT.—Indicate on the map:

a. The firing position area selected for each section after its displacement.

b. The observation post of the platoon leader and of each chief of section.

c. Location of 1st Platoon ammunition truck and trailer.

55. A SOLUTION OF FOURTEENTH REQUIREMENT.—*a.* See Map E (figure 40).

b. See Map E (figure 40).

c. See Map E (figure 40).

56. DISCUSSION.—Observation of the foreground from the vicinity of NEWTON ROAD indicates to the platoon leader that his unit may encounter difficulties in displacing forward. Therefore, the ground must be carefully reconnoitered and guides provided for each section.

The firing position of the platoon is located in the edge of the clearing about 600 meters north of Hill 612. Hill 612 provides good observation. Section observation posts will be selected and wire communication established to the firing position area from each one. The platoon observation post will be located at one of those established for the sections.

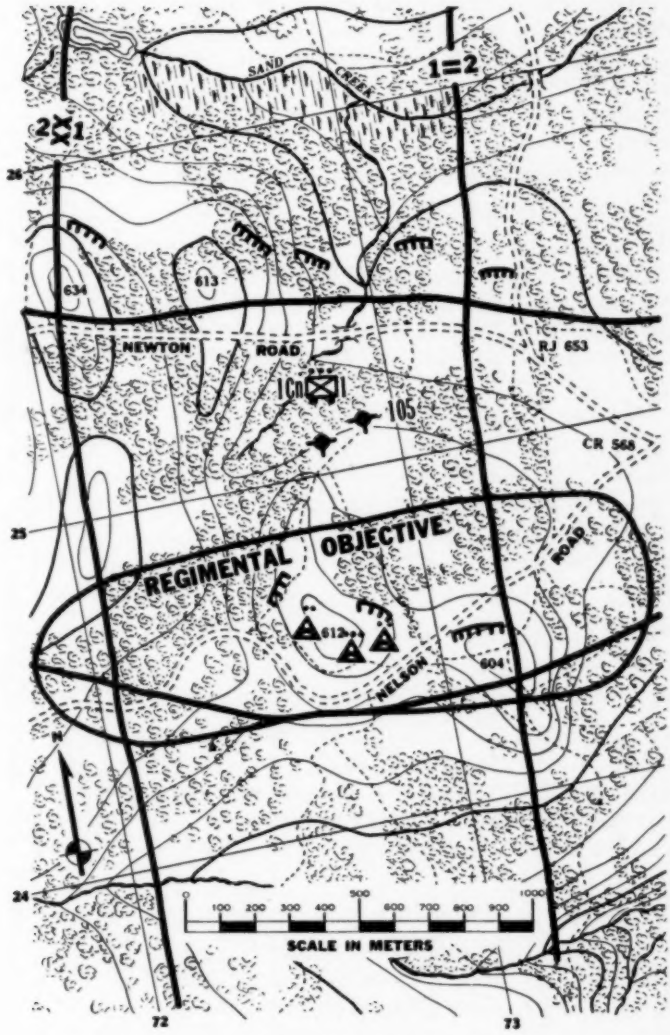


FIGURE 40.—Map E.

SIG. 8

While Hills 612 and 604 provide excellent observation to the south and southeast, enemy observers on high ground farther to the south might have an even better view of the crests of these hills because of the lack of concealment these crests afford. Cannon leaders must be ready to move to alternate observation posts as these key points will undoubtedly be subjected to hostile fires.

In the previous firing position (that shown on Map D, figure 39), the nature of the terrain necessitated separation of the two sections of the platoon because there was no suitable platoon firing position available. Whenever possible, however, the sections should be kept close enough together to permit platoon fires. By placing the howitzers in a platoon firing position, communication and control are simplified, ammunition supply is facilitated and the fires of both weapons may be conducted by a single observer and if desired, may be massed on a single target.

CHAPTER 10

Decorations, Commendations, And Other Awards

The purpose of military awards is to acknowledge publicly the nation's gratitude for the performance in its service of acts of exceptional merit, fidelity, and heroism, and also to provide a constant incentive to the performance of outstanding deeds. It is more effective to reward merit than to punish misconduct and inefficiency. Rewards must be made with discernment and justice. Promptness in recognition is a prime factor in the adequate reward of a meritorious act or deed. *No deserving individual should be overlooked.* Service and campaign medals are awarded to all personnel who participate honorably in specified wars or campaigns.

Certain awards are made to military personnel who distinguish themselves in combat; others for acts not involving combat.

Commendation during combat is especially valuable. The commander should, if possible, express approval to individuals immediately, before their comrades, and later reduce the commendation to writing for official record when warranted. The following combat awards are listed in order of precedence:

Medal of Honor.—Takes precedence over all awards, foreign or domestic. Awarded to an individual who distinguishes himself in actual combat with the enemy, *at the risk of his life, by an act beyond the call of duty which, if omitted, would not subject him to censure.*

Distinguished-Service Cross.—Awarded to a person who distinguishes himself by *extraordinary heroism in connection with operations against an enemy.* The act or acts of heroism must be notable and involve an extraordinary risk of life.

Distinguished-Flying Cross.—Awarded to an officer or soldier who distinguishes himself by *heroism or extraordinary achievement while participating in either a combat or non-combat aerial mission.*

Silver Star.—Awarded to an officer or soldier who is cited for *gallantry in action which does not warrant a Medal of Honor or the Distinguished-Service Cross.*

Purple Heart.—Awarded to an officer or soldier who is wounded in action against the enemy and treated by a medical officer.

Combat Infantryman Badge.—Awarded to enlisted and commissioned infantrymen whose conduct in action is exemplary or who satisfactorily perform duty in action in a major operation as determined and announced by the theater commander.

Expert Infantryman Badge.—This is not necessarily a combat award, but is included here because of its relationship to the Combat Infantryman Badge. It is awarded to enlisted and commissioned infantrymen whose performance of duty in action is satisfactory or who attain the specified War Department standards of proficiency. The standards are described in detail in War Department Circular No. 322, dated 11 December 1943. These standards require the satisfactory completion of a series of eleven tests and certain other prescribed training.

The Combat Infantryman Badge is a higher award than the Expert Infantryman Badge. Only one of these two badges will be worn at a time. Badges are worn as prescribed in AR 600-40.

The purpose of both badges is to foster esprit de corps, develop individual proficiency, and to recognize the infantryman's ability to carry the combat to the enemy. Both

MEDAL OF HONOR

DISTINGUISHED-SERVICE CROSS

DISTINGUISHED-FLYING CROSS

ALSO A NON-COMBAT AWARD

FIGURE 41.—Combat awards.

See also Figure 42.

awards are made by the regimental commander upon recommendation of the company commander. In a unit, not a regiment, the awards are made by the unit commander with the approval of the next higher commander. Awards are announced in unit orders and presentation is made with due ceremony.

The right to wear the badge may be withdrawn for due cause by a commander authorized to make the award. See War Department Circular No. 269, 1943. Having been withdrawn, the right to wear again the Expert Infantryman Badge may be restored if the individual again demonstrates his eligibility to receive the award.

When 65% of the T/O strength of a unit have been awarded either badge, the unit is entitled to a white streamer with a blue lettered title, "Expert Infantry Company (Battalion or Regiment)" or "Combat Infantry Company (Battalion or Regiment)" as the case may be, for the unit guidon, color or standard. In calculating percentage, only holders of Combat Infantryman badges will be considered for the Combat Infantry streamer.

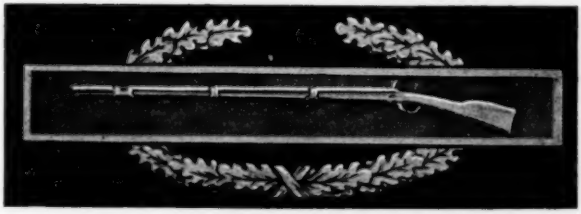
Citation Device for Organizations.—This is both a unit and an individual decoration. The award is made by the War Department to an organization which has exhibited in action such *outstanding courage, determination and esprit in overcoming unusually difficult and hazardous conditions as to set it apart and above other organizations participating in the same action.* It is likened to the award of a Distinguished-Service Cross to an individual.

1. The organization decoration is a streamer for the colors and guidons.

2. The *Distinguished Unit Badge* is the individual award. Individuals assigned or attached to units who participated in the action in which the unit was cited by War Department General Orders are authorized to wear this badge permanently. Those assigned or attached subsequent to the action for which the unit was cited may wear the badge only while assigned or attached to the unit.

SILVER STAR

PURPLE HEART



THE COMBAT INFANTRYMAN BADGE

(THE EXPERT INFANTRYMAN BADGE IS SIMILAR BUT DOES NOT HAVE A WREATH.)

DISTINGUISHED UNIT BADGE

OAK LEAF CLUSTER

(ALSO A NON-COMBAT AWARD)

FIGURE 42.—Combat awards.

See also Figure 41.

Commendations.—No individual's act or deed worthy of commendation should pass unrewarded. An act which does not merit a decoration may merit a commendation. Liberality is the rule in bestowing written and oral commendations.

Units which perform meritorious service not sufficient to warrant a War Department citation may be cited by theater or other field commanders.

The following awards are for particular achievement or exceptional merit or fidelity not in combat:

Distinguished-Service Medal.—Awarded to any person who distinguishes himself by *special meritorious service in a duty of great responsibility.*

Legion of Merit.—Awarded to a soldier or officer whose *services over a period of time are marked by extraordinary fidelity and efficiency above and beyond the usual, or who performs a particular achievement of special note or importance. It is particularly desired that recognition shall be given to personnel in the enlisted and low commissioned grades whose services meet the required standards.* For time limits, see par. 21*b*, AR 600-45.

Soldier's Medal.—Awarded to an officer or soldier who distinguishes himself *by heroism not involving actual conflict with the enemy.*

Distinguished-Flying Cross.—See AR 600-45.

Air Medal.—See AR 600-45.

Good Conduct Medal.—Awarded to an enlisted man who is recommended by his unit commander and approved by his commanding officer and who, on or after 27 August 1940, had or shall have honorably completed three years of active Federal military service or who after 7 December 1941, shall have honorably served one year of active Federal military service while the United States is at war. A clasp is awarded for the completion of any subsequent three-year period.

Oak-Leaf Clusters.—When a person is awarded the same decoration a second or succeeding time, an Oak-Leaf Cluster is presented, instead of an additional medal, to indicate that

DISTINGUISHED-SERVICE MEDAL

LEGION OF MERIT

DISTINGUISHED-FLYING CROSS

FIGURE 43.—Awards not involving combat.

See also Figure 44.

the recipient has again been decorated. A bronze Oak-Leaf Cluster is given for each succeeding deed or act justifying the same award. The Oak-Leaf Cluster is not awarded in connection with the Good Conduct Medal. A silver Oak-Leaf Cluster may be substituted for the bronze Oak-Leaf Cluster in the ratio of one to five.

Posthumous awards.—Any award may be made posthumously. The Good Conduct Medal may be awarded posthumously provided the recommendation was made prior to the individual's death. The Purple Heart medal is awarded posthumously to the next of kin regardless of the fact that a previous award of this decoration has been made.

Prompt promotion in grade or rank in recognition of leadership and other soldierly qualities, especially in combat, promotes morale and increases efficiency. A commander not authorized to make a deserved promotion recommends it promptly to higher authority. Promotion should not be denied because of wounds or other disability incurred in line of duty.

PROCEDURE FOR RECOMMENDING PERSONNEL FOR AWARDS

It is the duty and privilege of every officer to recommend for a decoration all those under his orders who, by gallantry or exceptionally meritorious service, distinguish themselves above and beyond their fellow soldiers. *The recognition of such services should be promptly made, with appropriate ceremony and due publicity.*

The recommendation for an award should be made *as soon as possible after the heroic act or deed is performed,* while witnesses are available and the facts still fresh in their minds. *Delay in initiating an award may mean that recognition will never be made.* To avoid delay, a supply of decorations is maintained at all headquarters authorized to award them.

Awards of decoration are made by the War Department or designated commanders for the President. The authority to award decorations (other than the Purple Heart) authorizes a commander to make awards only to individuals

AIR MEDAL

SOLDIER'S MEDAL

GOOD CONDUCT MEDAL

FIGURE 44.—Awards not involving combat.
See also Figure 43.

permanently assigned to his command, except that immediate combat awards may be made for acts performed by individuals physically present within his command under competent orders. Such commanders are also authorized to take final action on recommendations for acts or services performed while individuals or units were permanently assigned to that command but subsequently transferred or separated therefrom. In any case where the commander is not authorized to make an award, recommendations will be forwarded to the War Department.

The Medal of Honor and the Distinguished-Service Medal may be awarded by the War Department only.

The Legion of Merit may be awarded by commanders specifically authorized by the War Department. Such authority may not be delegated.

The Distinguished-Service Cross, the Silver Star, the Distinguished-Flying Cross, the Purple Heart, the Soldier's Medal, and the Air Medal may be awarded by the commanding general of United States Army Forces in a theater of operations, or the commanding generals of any of the following, when operating directly under the War Department:

1. An army or air force.
2. A group of armies.
3. A defense command in Alaska or outside the continental United States.
4. Any separate force commanded by a major general or officer of higher grade.

The Purple Heart may be awarded also by the commander of any force which is commanded by, or the appropriate command of, a brigadier general or officer of higher grade, the commander of a named general hospital in the continental United States, and the commander of any general or evacuation hospital outside the continental United States.

Commanders authorized to make awards may delegate all or any part of their authority, except where specifically prohibited, to subordinate commanders of any force or command which is commanded by, or the appropriate command of, a major general or higher.

THE VICTORY MEDAL

FIGURE 45.—Clasps for Victory Medal.

No decoration shall be awarded or presented to any individual whose entire service subsequent to the time he distinguished himself shall not have been honorable.

For awards to civilians see AR 600-45.

Recommendations for the award of decorations may be initiated by any officer. *They should be initiated, to a large extent, by junior officers. No act or deed of especially meritorious conduct should take place in any unit without the immediate initiation of a letter recommending that proper award be made.* Each recommendation for an award will be submitted separately and forwarded through *command channels.* The recommendation must be based upon the statement of an eyewitness, preferably the immediate commander, and must contain a complete, yet concise, description of the services rendered in such detail that the appropriate commander or the War Department may determine whether the service was, in fact, sufficient to meet the requirements of the award.

Each basic recommendation should show the exact status of the individual at time of rendition of act or deed.

In a recommendation based upon service which covered an appreciable period of time, information will be included as to the exact period thereof.

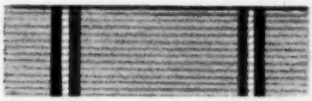
When a recommendation is supported by an official record this will be so stated and information will be included to identify such record.

Written testimony will be in the form of certificates or affidavits.

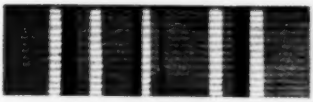
In recommendations for combat decorations specific information should be included, as is reasonably possible, regarding each of the following (using operations map, narrative statement, or any other convenient form) :

1. Character of the terrain, of hostile observation, and of enemy fire.
2. Visibility, time of day, and atmospheric conditions.
3. Location of the enemy.
4. Morale, that of our forces and that of the enemy.
5. Casualties sustained in the unit.
6. Effects or results of the deed in question, etc.

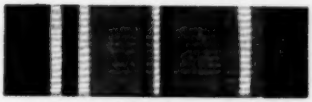
ARMY OF OCCUPATION
OF GERMANY
1918-1923



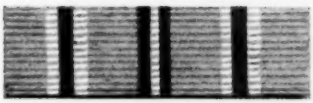
AMERICAN DEFENSE
1939-1941



AMERICAN THEATER
CAMPAIGN
1941-



EUROPEAN-AFRICAN
MIDDLE EASTERN
CAMPAIGN
1941-



ASIATIC-PACIFIC
CAMPAIGN
1941-

A BRONZE STAR (EXCEPT WHEN WORN ON AMERICAN DEFENSE RIBBON) INDICATES A BATTLE CLASP.

A SILVER STAR INDICATES FIVE BATTLE CLASPS.

FIGURE 46.—Campaign ribbons and stars to be worn in lieu of medals and clasps.

In addition to all other requirements, a recommendation for an award of the Distinguished-Service Medal or Legion of Merit will contain a complete description of service in such detail, to include dates, that it may be determined that the service rendered was in fact of such character as to meet the requirements of the law as to justify the award.

ILLUSTRATIVE EXAMPLE

SECOND PLATOON
COMPANY C, 766th INFANTRY

Near Civita Campomarano, Italy,
25 October 1943.

SUBJECT: Recommendation for Distinguished-Service Cross.
TO : C G, European-African Theater (Through Channels).

1. Private John P. Smith, 1234567, Company C, 766th Infantry, is recommended for the Distinguished-Service Cross.

2. On 24 October 1943, in connection with the occupation of Civita Campomarano, Private Smith displayed marked heroism in advancing alone against an enemy machine-gun nest which dominated the area across which his company was to advance. Despite heavy machine-gun and rifle fire, he succeeded in silencing the enemy guns and clearing the route of advance for his company. Although wounded, he continued to lead the advance until ordered to the rear.

3. During the action the following conditions prevailed:

a. The terrain was generally open and afforded little cover or concealment. Hostile observation was unimpaired. Enemy machine-gun and rifle fire, heavy and accurate.

b. Visibility was very good. Time of day that Private Smith performed deed was between 0905 and 0930. Atmospheric condition, clear.

c. The enemy was located, as shown in attached sketch.

d. Morale of our troops and of the enemy was high.

e. Casualties suffered by 2d Platoon, Co C: 2 killed, 4 wounded.

f. Due to Private Smith's action, the 2d Platoon of Co C was able to advance and capture its part of the company objective.

4. I was an eyewitness of the act of Private Smith.

5. Certificate and affidavit of two eyewitnesses and sketch showing enemy positions are inclosed in support of the recommendations.

/s/ Robert R. Barlow
/t/ ROBERT R. BARLOW,
2d Lt., Infantry.

3 Incls
Incl 1. Certificate of 1st Lt. William T. Sherman
Incl 2. *Affidavit of Sgt. John J. Jones.
Incl 3. **Sketch showing enemy positions.

CERTIFICATE

Near Civita Campomarano, Italy,
25 October 1943.

I certify that on 24 October 1943, at the small bridge near Civita Campomarano, at approximately 0915, I personally saw Private John P. Smith, 1234567, Company C, 766th Infantry, advance and capture an enemy machine-gun nest which was holding up the advance of his company. This action was accomplished in spite of good enemy observation and hostile machine-gun fire. Private Smith was wounded in the right leg during this action.

/s/ William T. Sherman
/t/ WILLIAM T. SHERMAN
1st Lt., Infantry.

When a person entitled to the Purple Heart is admitted to a hospital for treatment of a wound or when such person is treated for a wound without being admitted to a hospital, the commanding officer of the hospital, or, in the latter case, the medical officer who treats the wound, will furnish the

* The affidavit is not shown.
** The sketch is not shown.

commanding officer of the wounded person with a certificate describing briefly the nature of the wound and necessity for treatment.

CAMPAIGN AND SERVICE MEDALS AND RIBBONS

Campaign and service medals, and ribbons issued in lieu thereof, are awarded for military service in war, in campaign, or within certain periods of time.

The Victory Medal was awarded for active duty between 6 April 1917, and 11 November 1918, and to members of the Expeditionary Forces in Siberia or European Russia who may have entered the service subsequent to 11 November 1918. Battle and service clasps were awarded in addition to the basic medal.

One battle clasp was awarded for service in each operation or engagement acknowledged by the War Department.

One service clasp was awarded for service in each foreign country to those not entitled to a battle clasp.

A bronze star is worn on the service ribbon in lieu of each battle clasp awarded.

The Army of Occupation of Germany Medal was awarded to members of the armed forces who served in Germany or Austria-Hungary at any time during the period of occupation from 12 November 1918 to 11 July 1923.

Campaign Medals for Current War.—The American, European-African-Middle Eastern, and Asiatic-Pacific Campaign medals are awarded to members of the armed forces who, during the period from 7 December 1941, and the date six months subsequent to termination of the present war, shall have served outside the continental limits of the United States in any of the respective areas. Ribbons are issued at the present time. The medals are not yet available.

Eligibility for Theater Ribbons.—1. *Asiatic-Pacific and European-African-Middle-Eastern theaters.*—Upon arrival in either of these theaters, *under permanent change of station orders,* an individual automatically becomes eligible to wear the appropriate ribbon.

2. *American theater.*—Eligibility for this theater ribbon is established by:

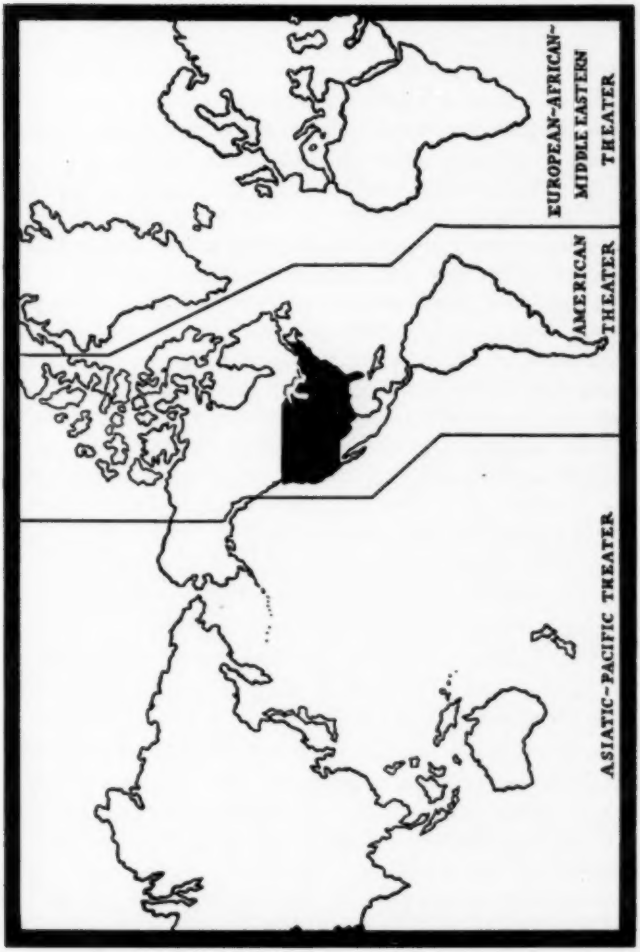


FIGURE 47.—Outline map of the world showing theater boundaries.

a. Arrival, *under permanent assignment orders,* at a place of duty in the American Theater, *outside the continental limits of the United States,* or

b. By 30 consecutive day's service permanently assigned, or as a crew member of a vessel sailing ocean waters, or of an airplane making regular and frequent trips over ocean waters beyond the continental limits of the United States.

3. *Any Theater.*—Any individual may become eligible to wear a theater ribbon *although not permanently assigned thereto* provided he:

a. Serves in the theater *in excess* of 30 consecutive days, or a total of 60 days, not necessarily consecutive.

b. Engages in active combat operations against the enemy and is either awarded a combat decoration or is furnished a certificate from a corps or higher commander or the commanding officer of an independent force to the effect that he has participated in combat operations.

4. *One Service Ribbon per theater.*—Not more than one service ribbon representing service in any one theater will be worn.

5. *Bronze star.*—One bronze star will be worn on the pertinent service ribbon for participation in each operation announced by the War Department in General Orders as authorizing participants to wear such recognition.

6. *Silver star.*—A silver star (not to be confused with the decoration of the same name) may be substituted for the bronze in the ratio of one to five.

The American Defense Service Medal is awarded for honorable service, to military personnel who served a period of active Federal service of twelve months or longer, any part of which was between 8 September 1939, and 7 December 1941, both dates inclusive.

A clasp inscribed "Foreign Service" is worn on the suspension ribbon if the recipient served outside the continental limits of the United States at any time during the period for which the medal is awarded.

A bronze star is worn on the service ribbon in lieu of the authorized clasp.

The Women's Army Corps Service Medal is awarded to enrolled women or commissioned members of the Women's Army Auxiliary Corps who served honorably and were subsequently enlisted or appointed in the Women's Army Corps.

REFERENCES

Additional information on decorations, awards, commendations, and campaign and service medals and ribbons is contained principally in the following publications:

1. *Army Regulations.*—*a.* AR 600-35, including Changes; Section IV, Decorations, service medals, badges, etc.

b. AR 600-40, including Changes; Section V, Decorations, service medals, etc.

c. AR 600-45; Award and supply of decorations for individuals.

d. AR 600-55; Commendation for exceptionally meritorious conduct.

e. AR 600-65, including Changes; Award and supply of service medals, except initial supply of Victory Medal.

f. AR 600-68; Good Conduct Medal.

2. *War Department Circulars.*—*a.* Series of 1942.

b. Series of 1943.

c. Series of 1944.

3. *War Department Memoranda.*

4. *American Decorations,* including Supplements, AGO, WD, Washington, D. C., 1927.

LIST OF BATTLES AND CAMPAIGNS OF THE UNITED STATES ARMY IN THE PRESENT WAR

Asiatic-Pacific Theater

Extracted from War Department General Orders No. 75, dated 29 October 1943 and War Department General Orders No. 83, dated 2 December 1943.

1. Central Pacific.

a. Combat zone.—That portion of the Central Pacific Area lying west of the 180th meridian; the Gilbert Islands and Nauru; the Hawaiian Islands on 7 December 1941 only, and Midway Island from 3 to 6 June 1942 only.

b. Time limitations.—7 December 1941. Final date to be announced later (except as indicated in *a* above).

2. Philippine Islands.

a. Combat zone.—Philippine Islands and waters within 50 miles thereof.

b. Time limitations.—7 December 1941 to 10 May 1942.

3. East Indies.

a. Combat zone.—Southwest Pacific Area less the Philippine Islands and less that portion of Australia south of latitude 21° South.

b. Time limitations.—1 January 1942 to 22 July 1942.

4. Papua.

a. Combat zone.—Southwest Pacific Area less the Philippine Islands and less that portion of Australia south of latitude 21° South and east of longitude 140° East.

b. Time limitations.—23 July 1942 to 23 January 1943.

5. New Guinea.

a. Combat zone.—Southwest Pacific Area less the Philippine Islands and less that portion of Australia south of latitude 21° South and east of longitude 140° East.

b. Time limitations.—24 January 1943. Final date to be announced later.

6. Guadalcanal.

a. Combat zone.—Solomon Islands, Bismarck Archipelago, and adjacent waters.

b. Time limitations.—7 August 1942 to 21 February 1943.

7. Northern Solomons.

a. Combat zone.—Solomon Islands north and west of Russell Islands; Bismarck Archipelago, and adjacent waters.

b. Time limitations.—22 February 1943. Final date to be announced later.

8. Burma, 1942 (This pertains to operations on the Burmese mainland during the period indicated, and to such local air operations as were directly concerned therewith.)

a. Combat zone.—Geographical limits of Burma.

b. Time limitations.—7 December 1941 to 26 May 1942.

9. India-Burma.

a. Combat zone.—Those parts of India, Burma and enemy-held territory lying beyond the following line: The Assam-Thibet border at east longitude of 95° 45′, thence due south to latitude 27° 32′ North; thence due west to SADIYA branch of SADIYA-DIBRUGARH railway (excl.); thence southwest along railway to TINSUKIA (excl.); thence south along Bengal and Assam railway to NAMRUP (excl.); thence southwestward through MOKEUCHUNG, KOHIMA, IMPHAL and AIJAL to CHITTAGONG (all incl.); also adjacent waters.

b. Time limitations.—2 April 1942. Final date to be announced later.

10. China.

a. Combat zone.—Enemy-held portions of China and contiguous countries plus a zone of fifty miles in width extending into territory held by Allied forces.

b. Time limitations.—4 July 1942. Final date to be announced later.

11. Aleutian Islands.

a. Combat zone.—The area bounded by longitude 165° West, and 170° East, and by latitudes 50° and 55° North.

b. Time limitations.—3 June 1942 to 24 August 1943.

European-African-Middle-Eastern Theater

12. Air Offensive, Europe.

a. Combat zones.—European Theater of Operations exclusive of the land areas of the United Kingdom and Iceland.

b. Time limitations.—4 July 1942. Final date to be announced later.

13. Egypt-Libya.

a. Combat zone.—Those parts of Egypt and Libya lying west of 30° East Longitude to 6 November 1942 and west of 25° East Longitude thereafter, and adjacent waters.

b. Time limitations.—11 June 1942 to 12 February 1943.

14. Algeria-French Morocco.

a. *Combat zone.*—Algeria, French Morocco, and adjacent waters.
b. *Time limitations.*—8-11 November 1943.

15. Tunisia.
a. *Combat zone.*—Tunisia and Algeria east of a north-south line through Constantine and adjacent waters.
b. *Time limitations.*—8 November 1942 (air), 17 November 1942 (ground) to 13 May 1943.

16. Sicily.
a. *Combat zone.*—Sicily, and adjacent waters.
b. *Time limitations.*—14 May 1943 (air), 9 July 1943 (ground) to 17 August 1943.

17. Italy.
a. *Combat zone.*—Italy (exclusive of Sicily and Sardinia), Corsica, and adjacent waters.
b. *Time limitations.*—18 August 1943 (air); 9 September 1943 (ground). Final date to be announced later.

All Theaters of Operations

18. Anti-submarine (where not incident to named battle or campaign for which the unit otherwise receives credit).
a. *Combat zone.*—All theaters of operations and defense commands.
b. *Time limitations.*—7 December 1941. Final date to be announced later.

19. Ground Combat (not included in one of the above campaigns).
a. *Combat zone.*—All theaters of operations.
b. *Time limitations.*—7 December 1941. Final date to be announced later.

20. Air Combat (not included in one of the above campaigns).
a. *Combat zone.*—All theaters of operations.
b. *Time limitations.*—7 December 1941. Final date to be announced later.

The following is an extract from paragraph 12, AR 260-10:

Honors—streamers and silver bands.—*a.* The names of battles and campaigns, participation in which entitles units to battle honors, are published in War Department General Orders.

b. Streamers.

(1) Streamers of ribbon will be used to show—

(*a*) The names or dates of campaigns or battles, participation in which entitles the unit to battle honors.

(*b*) Outstanding performance of duty in action for which an organization has been cited in War Department General Orders.

(*c*) Service in war for which service medals are authorized.

(*d*) Award of a decoration by a foreign government expressly conferred upon a unit. The decoration itself will be used only when decorations and service medals are prescribed by the commanding officer for a ceremony, and when so prescribed will be attached to the streamer near the spearhead. A decoration awarded by a foreign government belongs to that organization and its subordinate units alone, and is not acquired under the provisions governing the crediting of combat service.

(2) The War Department will publish in general orders the names of battles and campaigns for which units participating therein will receive credit. The commanding generals of United States army forces in the several theaters of operations and defense commands will designate and inform the units concerned of battle credits to which they are entitled, using such method of notification as is consistent with security. Lists of such units will be furnished The Adjutant General, Washington 25, D. C., in triplicate.

(3) The following will govern the determination of units entitled to credit for battle participation:

(*a*) *Definition of participation in combat.*—Any unit (including headquarters, service, or combat units) will be deemed to have participated in combat if it actually engaged the enemy or if it was stationed in the combat zone or performed duties, either in the air or

on the ground, over any part of the combat zone, at any time during the designated period of the respective battle or campaign. The boundaries of combat zones in each theater will be established by the War Department. (NOTE.—Any unit which in the opinion of the theater commander is entitled to battle participation credit but does not fall within the terms of the above definition may be recommended for such credit to the War Department.)

(*b*) Units (including all component parts thereof as established by Tables of Organization or Tables of Allotments) will be accorded credit for battle participation when—

1. In the case of a regiment if one-third of the company units composing its battalions have participated, provided that prior to 1898 credit will be given to a regiment whenever two or more companies participated in the given action. In cases where a former unit has been merged into another, the latter will be given credit for the combat service of the former.

2. In the case of a group (Army Air Forces) if one-third of the squadrons composing it have participated.

3. In the case of a separate battalion if one-half of its company units have participated, with the proviso noted above for a regiment.

4. In the case of a company if the company as such, not a detachment, has participated, regardless of the actual number of men engaged.

5. In the case of a squadron (Army Air Forces) if the squadron as such, not a detached flight, has participated, regardless of the actual number of airplanes involved.

6. In the case of the headquarters of a unit authorized a distinguishing flag, each such case will be

considered on its own merits and decision made by the theater commander.

(*c*) Credit will be awarded only once to a unit for participation in any one battle or campaign.

EDITORIAL NOTE.—Since this chapter was prepared, there has been announced the *Bronze Star Medal,* a new award for heroic or meritorious service against the enemy. The Bronze Star may be awarded to any person "who while serving in any capacity in or with the Army, on or after 7 December 1941, distinguishes, or has distinguished, himself by heroic or meritorious achievement or service, not involving participation in aerial flight, in connection with military operations against an enemy of the United States."

This medal, which in order of precedence ranks between the Soldier's Medal and the Air Medal, provides a means of recognizing performance of duty beyond the ordinary, but which is not sufficiently outstanding to warrant the award of a Silver Star or Legion of Merit. The Bronze Star may be awarded for service either in actual combat or in direct support of combat operations. It is expected that members of the Army Ground Forces, particularly infantrymen, may lead the eligibility lists.

The design of the medal has not yet been announced, but pending availability of the medal, service ribbons for this decoration will be distributed. The ribbon is of Old Glory Red with a one-eighth inch vertical stripe of Royal Blue in the center. White piping separates the blue stripe from the basic red, and the entire ribbon is edged with white piping.

CHAPTER 11

FM 21-20, Physical Training—Stay With It—Drive Harder

"Soldier physical fitness" has become an everyday expression, so commonplace that we are apt to forget the idea behind the words. What do we really mean by the term and, which is even more important, what are we doing as troop leaders to make and keep our soldiers physically fit?

The physical fitness goal of the army is clearly stated in War Department Basic Field Manual 21-20, Physical Training:

> To perform his duties satisfactorily the soldier must possess great organic vigor, muscular and nervous strength, endurance, and agility.

To amplify this statement, the soldier who has attained a satisfactory degree of physical fitness will have a body which is supple, well-proportioned, and well-balanced, harmoniously developed without a surplus of soft fat. He will possess the essentials of good posture, adequate muscular strength for his duties, and the ability to perform them with a high degree of motor proficiency. He will have the will and the muscular reserve to push himself without ill effects to the limit of his endurance in sustained effort which involves speed, power, and strength. By his skill and physical coordination he will accomplish the maximum amount of work with the minimum expenditure of energy.

This is the physical picture of the ideal soldier. Now what must be done to realize the ideal?

There is a human tendency for many commanders, when the pressure is on, to discard as obsolete the methods of instruction that have proved to be basically sound and effective, and to favor new, untried "blitz" methods. There are

almost as many different systems of physical training throughout the army today as there are large concentrations of troops. These varying systems are not all bad, but neither are all of them good. And there is really no valid excuse for so many differing systems.

Other phases of military training are based on certain fundamental principles set down in our field manuals. Physical training is no exception. FM 21-20 is a comprehensive, well-edited manual and conforms to accepted standards and principles of sound physical education.

In too many instances this manual has been deliberately shelved, and there has been substituted in its place a "hand-me-down" or "by-word-of-mouth" type of physical training which sold itself on a one-hour demonstration wherein no thought was given to its application over a definite training period involving many weeks of work. Such systems of physical training are usually limited in variety of exercises. Though they may be popular for several periods, they soon lose their effectiveness because of the monotonous repetition of the same exercises. No one type of activity will suffice for a program of physical training. Variety in the program is necessary to develop and retain the interest of the men. Physical training should react as an exhilarant and should awaken enthusiasm. This condition will prevail only so long as the program is made interesting by the spark of variety. Lack of variety is a notable weakness in these "blitz systems," when considered over a given cycle of training.

Many of these special systems of "toughening" are lacking in another definite essential—namely progression. The condition and aptitude of the men should always determine the nature and extent of the task expected of them. The program must be planned in order to condition the men gradually. Too frequently, quantity of exercise is mistaken for quality, and serious harm results.

There is no short cut to sound physical conditioning. The "champ-in-a-day" theory has long been exploded. We can well afford to take a lesson from the successful football coach who makes conditioning of men his profession. Even

though his men, when he initially receives them, are physical specimens far superior to the average soldier, he is fully cognizant of the importance of progressive physical conditioning. During the short pre-first game training period of two or three weeks, he does not attempt to drive his team to the peak of condition. That would be foolish, even if possible. He is much more concerned that his team reach its peak of condition by the last week in November. He will carefully plan his work-out periods as well as his schedule of games to reach that desired peak gradually. If this plan is adaptable to conditioning for the most rugged of sports it surely warrants consideration and offers a good example of progressive training over a long period of weeks, comparable to the army's training cycles. The lack of variety, interest, and progression in so many blitz methods of physical training is in direct contradiction of the principles presented in FM 21-20.

The physical training program for the soldier should be based on vigorous setting-up exercises. Some instructors have been inclined to turn thumbs down on this type of work and give it no place in the program. This may be because they have frequently seen such work half-heartedly presented. Too often, instructors make a poor selection of exercises, do not demand vigorous execution, or fail otherwise to conduct the exercises properly. Or, it may be because of a failure to appreciate the values of setting-up exercises in their contribution to physical fitness.

There is much more to setting-up exercises than mere exercising. An understanding of the physiological as well as the physical effects of exercise is very important. Physical conditioning or toughening is a matter of heart and lungs as well as muscle.

Setting-up exercises have definite advantages over any other type of physical activity. Their purposes and functions have been stated in various ways but all authorities agree there are four: the development and maintenance of body health, good body mechanics, body suppleness, and body control.

Man's physical mechanism of bones, muscles, nerves, and vital organs is the product of infinite ages of adaptation. This is an inherited endowment, which, if kept in a healthy condition, provides him with his chief source of happiness and efficiency; and, if allowed to degenerate, produce misery and inefficiency.

The primary source of body health comes from exercise. Our organism is the direct product of muscular activity and, in muscular movements lies the principal factor in developing and maintaining vigor, vitality, and power. Through exercise, the circulatory system, the digestive system, eliminatory system, the respiratory system, and metabolism in general are stimulated to produce a state of organic health. Vigor, vitality, and power are directly related to the condition of our vital organs.

The organic results produced are a product of all our muscular efforts. Every muscular contraction has a metabolic effect; food is demanded and waste must be carried off, thereby stimulating the circulation. In addition, the mere act of con[illegible]action has the effect of mechanically forcing blood through the veins. To maintain the proper chemical balances in the blood stream, the respiratory rate is increased. Thus, every muscular effort results in organic stimulation in direct proportion to the quantity of work performed. Since this correlation actually exists—"foot pounds of work" should be the guide. In keeping with the condition and aptitude of the men, the work should be vigorous. The movements should be powerful and regular to arouse the entire organism to produce the best hygienic results. In a properly planned and well conducted setting-up exercise period, the heart rate is increased, arterial pressure raised, venous and lymph stasis released, skin flushed, sweat glands activated, and the abdominal organs (liver, intestines, kidneys, internal glands) are vigorously stimulated. Frequent and regular repetition will increase the functional efficiency of all organs.

In order to obtain these good results, there are certain principles to be followed in setting-up exercises.

First, the large-muscle areas should be exercised in preference to small-muscle areas. The trunk and leg movements, those involving the larger parts of the body, should make up the bulk of the work. Massaging, jarring, and squeezing the abdominal and thoracic contents stimulate the organs into healthy activity. In the same manner, bending and twisting the spinal column has an excellent stimulating effect on the spinal cord, the nerves, and ganglia.

Second, there should be enough repetition of the exercise to cause the men to feel definite organic and muscular effects. By repeating an exercise, the physiological results tend to pile up; if the exercises are changed too soon, this does not occur. For best hygienic results, repeat the exercise a reasonable number of times.

Third, the exercises should be performed rhythmically. The rhythmic alternate contraction and relaxation of the muscle groups aid the circulation, respiratory, digestive, and other vital processes. Physiologically, this is the most satisfactory method of exercising. Prolonged contractions are nervously fatiguing and intermittent contractions and relaxations are not.

Fourth, the movements should be large and executed at normal speed. If the movements are made slowly, the organism is afforded the opportunity to adjust itself, but if they are made too rapidly, the nerve strain is increased and the value of the work is reduced. For best results, the large movements should be conducted at a normal, natural rate.

These four principles, if followed in conducting setting-up exercises, will contribute materially to the development and maintenance of body health.

The second purpose and function of setting-up exercises is to develop and maintain good body mechanics. In a military sense this means good posture, the position of the soldier. There are three well established factors in producing good body mechanics. The most important factor is the creation of an ideal. Educators agree, that without this attitude of mind, all good postural exercises known will be only partially effective.

The instructor is responsible that this attitude of mind toward good posture is created and nurtured. The second factor is good muscle tone. The body is held erect by means of the muscles which hold the ligaments and bones in position. Likewise the internal organs are held in position by various muscle groups. If the skeletal and torsal muscles are in tonic condition the body will be held in a more or less upright position. The correct selection of exercises will effect this condition. This brings us to the third factor producing good body mechanics. In order to achieve the desired posture, certain muscles must be stretched to relieve constriction while other muscles must be strengthened or shortened to cause constrictions where needed. This is one specific effect which setting-up exercises and no other general types of exercise can accomplish so quickly.

So far, we have mentioned how setting-up exercises contribute to body health and body mechanics. What can it do for body suppleness? Our daily movements are normally not as large as our joints allow or our muscles can produce. In other words, most of our activity is carried on through the central half of contracting and extending sections of the possible arcs of movement. As this process goes on, the ability to flex and extend fully is gradually lost; the span of possibility of movement becomes reduced; the mobility of the joint becomes restricted. Muscles, bones, and ligaments, all accommodate themselves to the demands made upon them. These conditions will develop unless there is a vigorous and continued effort to counteract them. The ability to flex and extend fully is the difference between awkwardness and gracefulness, in the manly sense of the word. Body suppleness is a prime requisite to agility. The soldier's movements may be smooth and efficient within the range of his daily activity but when he is called upon to extend his normal body movements beyond this range, his awkwardness becomes evident.

Body suppleness is closely allied to good body control, the fourth purpose and function of setting-up exercises. To be a military effective, the soldier must have the ability to handle his body efficiently. His ability to withstand fatigue

and to produce prolonged effort is in direct proportion to his ability to enervate the proper muscles at the proper time with the proper amount of speed and effort to a given physical act.

There are several factors which dominate good body control; accuracy, involving position and time; alertness, mind and body prepared for action; inhibition, the ability to hold until the moment of supreme effort; and speed and economy of effort with no wasted energy. The soldier who has good body control is an asset to himself and his organization.

The goal of setting-up exercises is clear; to maintain and develop body health, good body mechanics, body suppleness, and good body control. All of these qualities can be attained through scientifically selected and directed exercises, and they are essential to individual fitness and military effectiveness. Because the dosage and distribution of "foot pounds of work" may be more efficiently governed and controlled by means of setting-up exercises, FM 21-20 recommends this means as the basis of physical conditioning.

This calls for careful consideration of the lesson plan. Two basic characteristics should apply to each period of setting-up exercises: totality and unity.

Each period should be as comprehensive as possible. Each should be directed toward improvement and progression in all the desirable directions. In normal groups we should seek to exercise the entire body in each period. It is obviously wrong to exercise the legs today, the trunk tomorrow, and the arms the following day. The entire body should be included in each daily period. No important organ or function should be overlooked or slighted, but all should receive attention according to their importance or needs. Each period should give a sample of all there is to offer. These samples should be varied from day to day in order to lend variety and interest but the basic types of exercise should always be present. The period that satisfies these requirements has totality.

To be well planned, the lesson must also have unity. Initial exercises of each period should be of a disciplinary, alerting and warming-up nature. These should be followed by the heavier movements of the legs and body in a sequence of increasing vigor. There should be a steady, gradual development toward the exercises of greater severity.

The order of exercise is important. A suggested sequence of exercises, consists of an arm exercise, a leg exercise, a trunk bending exercise, a trunk twisting or turning exercise, and then five or six combined exercises, requiring movement of the large parts of the body with increased severity. The last exercise should be one that taxes the respiratory system in particular. This will cause the exerciser to breathe deeply and naturally, and is more desirable than to give breathing exercises for breathing exercise alone. This sequence will provide unity to the exercise period.

In the selection of exercises it is well to remember that exercises for their exhibition effect only, are to be avoided. Parade-ground precision in setting-up exercises can be overdone to an extent which results in the loss of the hygienic values for which the exercises were intended. It is also a waste of time to teach coordination exercises for their own sake; only useful coordinations have any value.

So far, in this article, the attempt has been made to show that the physiological as well as the physical values to be gained from setting-up exercises warrants their selection as the basis of all good physical training programs. The principles are sound and if properly applied and directed, lend themselves to the essentials of an all-around harmonious development, progression, variety, and interest. FM 21-20 is adequate and provides a wealth of material on setting-up exercises. All that is needed is an expert working knowledge of that manual by those directly concerned with the planning, supervision, and actual conduct of physical training. We need but to stay with it and drive harder.

It is not intended that setting-up exercises alone shall make up the entire physical training period. Twelve to fifteen minutes of a vigorous type of setting-up exercises at

the beginning of each period of physical training will be time well spent in thoroughly preparing the men for rugged training in the basic skills of running, jumping, climbing, crawling, and vaulting. Training in these basic skills develops agility and endurance.

Most men function below their normal physical capacity. We must learn to increase the demands on the body and develop greater power, strength, and endurance for sustained effort. Again, we must keep in mind the element of progression. These demands on the body must be increased progressively. As an analogy, one doesn't train to run five miles by running five miles. He starts with a much shorter distance, alternating running and walking periods, gradually shortening the walking periods, and lengthening the running periods.

Aside from the setting-up exercises in each physical training period, other exercises, skill activities, should also be included. Skill activities involve primarily the neuromuscular system. Those which involve moderately fast and sudden contractions of the large muscle masses (in contrast to pure slow strength activities) are to be preferred. They are likewise preferred to those involving small muscle groups. Care should be taken to include alertness types of exercises of various kinds demanding quick reactions; sudden grasps of situations and adjustments to them by quick decisions.

In selecting activities to develop the soldiers' basic skills, alertness, speed, and endurance training should be allotted about 60% of the time and strictly skill, skill-strength, and skill-speed activities about 40%.

It is not possible, in one period of physical training, to include all the types of basic skill training in addition to the basic setting-up exercises. Here is an opportunity to inject variety into the program by dovetailing the special skill-training activities on succeeding days.

An adequate program of these special activities can be selected from FM 21-20; War Department Training Circular No. 87, 1942, and FM 21-150. From these three references the following different activities are selected:

marching and guerrilla exercises, running exercises, obstacle course running, personal contest and combatives of various types, physical fitness tests, and hand-to-hand fighting. Proper inclusion of these various skill activities will provide variety and increased interest to the program.

Marching exercises are described in FM 21-20 and should be presented prior to the guerrilla exercises described in WDTC No. 87, to obtain progression in severity of exercise. Both the marches and guerrilla exercises are circular, around-the-mill type of sustained effort, endurance exercise, and are directed by the instructor from the center of the circle. Much of the value of this vigorous type of exercise is lost, however, if it is conducted as purely a cadence drill. The instructor should insist upon vigorous execution—again, "foot-pounds of work" rather than parade-ground precision.

Grass exercises, borrowed from the football practice field, and long considered to be a fine conditioner, offer another distinct feature—training in reaction time. The soldier receives a command and reacts immediately. There is no preparatory command. This keeps every man on the alert to be the first to respond. Once started, this is a continuous-effort type of exercise, with no more than three or four repetitions of a given movement. Emphasis is placed on a maximum number of position and exercise changes within a given time period. The list of grass exercises described in WDTC No. 87 may be enlarged upon according to the ingenuity and ability of the instructor. From three to seven minutes, according to the stage of training of the men, is sufficient for one dosage.

Running exercises may be varied to include drill field running, cross-country running, relays, wind-sprints (football type) and obstacle course running. In accordance with WDTC No. 87 the method and order of progress used in practicing will be a combination of walking, jogging, fast running, and sprinting.

Relays are good training in running provided a wise selection of types of relays is made. A maximum number of men should be running at one time. In other words, the type of relay that calls for one man to run a certain distance and

back while the remainder of the platoon stands in line awaiting their turns is to be avoided. Select those relays that require four, six, eight, and even twelve men to run as a team against like teams. Relays are applicable also to obstacle course running. Besides their value as training in running there is the additional value to be gained in competitive spirit and teamwork.

Combative tests, whether dual personal contests or group combatives, will develop aggressiveness, initiative, and resourcefulness. To the many soldiers who have never had the experience of body-contact sports, this is an important phase of physical training. Described as personal contests in FM 21-20, these two-man combatives should be the first stage of the progression in combatives. The instructor can bring out of the men the degree of vigor and roughness desired. From this stage, the program should progress to the group combatives such as line charging and line wrestling described in WDTC No. 87. The soldier who is well grounded in these elementary combatives becomes an apt pupil in rough-and-tumble or hand-to-hand fighting by the mere fact that his progressive development has been gradual. There are many other types of activities which are based on sound principles of training in the basic skills. The ingenuity of the instructor will determine to a large degree whether the program has the necessary variety of activities in basic skill training.

This brings up one of the most important factors to be considered in an effective physical training program. The best planned and organized program will be only as effective as the individual instructor's ability to conduct that training. The importance of the instructor cannot be overemphasized. In selecting the right man for the job it would be well to refer to paragraph 10, FM 21-20, on Instructor Qualifications and Attitude. The new instructor also should study this "pay dirt" material.

Most of the techniques of good teaching can be directly applied to instruction in physical training. The subject must be made interesting. It is human nature to apply ourselves according to the depth and seriousness of our interests. Effective results will be obtained only so long as the instructor

receives and holds the interest of the men. An occasional short discussion of only a few minutes on the value and significance of physical training is worthwhile. Men like to know "why" as well as "how."

Some instructors control largely by exercising their authority, by constantly holding the whip of compulsion over their men. This type of discipline demands abject obedience but creates the wrong mental atmosphere. There is no incentive for good work when such a situation prevails. Other instructors are able to control because of the respect they are able to inspire; because they arouse a sense of duty; because they appeal to intelligent self-interest to derive the greatest possible benefit; and most important, because they are able to communicate their own enthusiasm and interest in the work to make it truly enjoyable. The most successful instructor knows how to play most skillfully on these different motives in the right proportion and at the proper time. There is no reason why the same wholesome mental attitude that prevails on the football practice field between players and coach cannot be duplicated between men and instructor on the military physical training field.

The instructor can do much to create this ideal atmosphere if, first of all, he has a thorough mastery of the subject and then the necessary personal qualifications and attitudes to put it over. Above all, he must be a leader—not a policeman enforcing "company discipline" via "physical torture."

The purpose of this article has been to recommend a more extensive use of FM 21-20 and adherence to the accepted principles and standards of physical training presented therein.

Good vigorous setting-up exercises are the basis on which to build sound physical conditioning. The physical training program based on vigorous setting-up exercises, supplemented by adequate training in the basic skills (for endurance and agility) with proper planning and supervision and conducted by a qualified leader will give us the kind of soldier physically whose military effectiveness will be unquestionable.

FM 21-20 is sound—Stay with It—Drive harder.

CHAPTER 12

Machine-Gun Technique In Defensive Combat

Our army's basic combat doctrine is to attack whenever possible. Even the most highly organized defensive position is created primarily as a temporary expedient while we await the opportune moment to strike offensively. This characteristic of expediency, however, should in no manner lessen the thoroughness of our defensive organization. The purpose of this article is to present, from the viewpoint of the infantry battalion machine-gun units, the step-by-step process of organization of the battle position. The sequence of steps will not be the same in all tactical situations, but each of the steps outlined herein should be accomplished if time permits.

To permit continuity of thought and to explain the purpose of these steps, certain logical enemy actions will be described. There is no fixed pattern by means of which the progress of battle can be foreseen, and it should not be assumed that situations identical to those described will be encountered in any particular operation.

Machine guns, both heavy and light, are the backbone of defense, and together with rifles, mortars, artillery, tanks, infantry howitzers, and antitank weapons, form a team which it is expected the enemy will be unable to break from any direction or by any action. Both the heavy and light machine guns are capable of delivering a large volume of fire, and because they use the same cartridge, the problem of ammunition supply is simplified.

Machine guns are employed throughout the defensive position; they form the major part of the final protective line; they provide flank protection; they provide depth to

the position; and in case of a penetration by the enemy, the machine guns provide the principal close support of the counterattack to eject him.

As nearly as practicable, the forward machine guns are sited to fire interlocking bands of flanking, grazing fire across the front of the battalion. These guns provide the major portion of the final protective line—a flying wall of steel in front of the position. This line is supplemented by tactical wire entanglements which are erected directly behind these bands of fire and slow or stop the enemy advance where the machine-gun fires are most effective. On level or uniformly sloping ground, machine guns can obtain grazing fire on final protective lines at ranges up to 750 yards. But terrain is seldom level or uniformly sloping. Where ditches, gullies, or sudden dips cross the line of fire, there will be dead spaces, which machine-gun bullets cannot reach. These dead spaces must be covered by the fire of other weapons.

The characteristics of machine-gun fire must be borne in mind when deciding upon their employment. From his reconnaissance, the battalion commander knows just what job he wants the machine guns to do. Usually this job can be accomplished by disposing one platoon of heavy machine guns to support the main line of resistance. The light machine guns of the front-line companies are also used for this purpose. Usually, these light machine guns are placed on each flank of the battalion, the light machine guns of the right company on the right flank, and the light machine guns of the left company on the left flank. This disposition permits covering the entire front with machine-gun fire. Yet to facilitate supply, control, and administration, this disposition permits each machine-gun section to remain near its next higher organic commander.

The other platoon of heavy machine guns and the light machine guns of the reserve company are emplaced farther to the rear and given the primary mission of delivering long-range fire over the heads of front-line troops and in front of the main line of resistance. Initially, these overhead fires might be in support of the combat outpost, and later they might be in support of the main line of resistance.

The rearward machine-gun units are also given the mission of preparing supplementary positions behind the main line of resistance, and which they will occupy, when necessary, for the protection of the flanks of the battalion or for the limitation of enemy penetrations into the battalion defense area. Additional supplementary positions are selected from which the heavy machine guns can support counterattacks of the reserve company. These rearward machine guns may also be used as the battalion's principal means of active defense against air attack.

Coordination of the fires of light and heavy machine guns in the defense is a duty of the heavy weapons company commander. He explains the tactical situation to the leaders of the heavy machine-gun platoons and the light machine-gun sections. In accordance with the battalion fire plan, the heavy weapons company commander assigns missions to be fired and designates firing position areas. If time permits, he may issue a separate oral field order to each platoon leader in the area the platoon will occupy. When time is limited, he uses his reconnaissance officer to conduct one or more platoons to their firing position areas and repeat to them the instructions for employing their guns. One frequent arrangement is for the reconnaissance officer to take the leaders of the rearward heavy machine-gun platoon and reserve company light machine-gun section to their position areas, while the heavy weapons company commander conducts the leaders of the forward machine-gun units to their areas.

While this is being done, the platoon sergeant should bring the forward platoon up to defiladed and concealed positions as close as practicable to the firing position areas. The section leaders precede their units to receive orders. The platoon leader points out to each section leader the location of his primary position area and sector of fire, his supplementary position area, and the direction of the final protective line. He designates the time or signals for opening or withholding fire. Other data given in the defense order include: information of friendly and enemy troops; information concerning organization of the ground, to include

clearing of fields of fire, construction of emplacements, cover for personnel, and priority of work; and administrative details. If practicable, he issues this order to each section leader on the ground to be occupied by the section.

Within the position area assigned him, each section leader selects the exact firing position and alternate position for each of his guns.

Accomplishment of the section's mission is the primary consideration in selecting such positions, but other factors must also be considered. Cover and concealment of the gun and its crew are essential if the gun is to remain in action, for the enemy will do everything possible to reduce our machine guns early in his attack. The emplacement dug for the machine gun will provide cover and concealment if properly prepared, but by intelligent use of natural terrain irregularities, the labor and time necessary for this construction can be considerably reduced. For example, in the extreme situation indicated in figure 48, the gun at A, with the mission of firing on the enemy located at 3, is exposed to fire not only from 3 but also from 1, 2, 4, and 5. The same gun occupying position B can accomplish its mission equally as well as it could from position A, and is protected except in its own sector of fire, from fires from all points along the enemy front. In terms of cover, position B is ideal. It is seldom that such a combination of terrain and target position will be found, but advantage should be taken of whatever accidents the terrain affords.

The section leader should also consider routes of ammunition supply to the gun positions. In a defensive situation, an initial supply of ammunition at the gun position will seldom present a problem. However, the initial supply may be consumed before darkness, and resupply during daylight will necessitate covered routes of approach to the position.

The section leader or the platoon leader must also coordinate with the leaders of adjacent rifle platoons to insure that the fire of the machine guns will not be masked by the rifle units and that the selected machine-gun positions do not, in turn, mask the fires of the rifle platoons.

Arrangements must likewise be made to provide rifle protection for the machine-gun sections. The machine-gun unit leader also points out to the rifle platoon leader the location of the final protective line which his section is to establish.

Dead spaces and gaps in the final protective line may be covered by rifle, automatic rifle, mortar or infantry howitzer fires, and normal barrages of supporting artillery. Rifle company weapons are normally used to fill in the dead spaces which are close to the main line of resistance while the other weapons mentioned above cover dead spaces 200 yards or more in front of the main line of resistance.

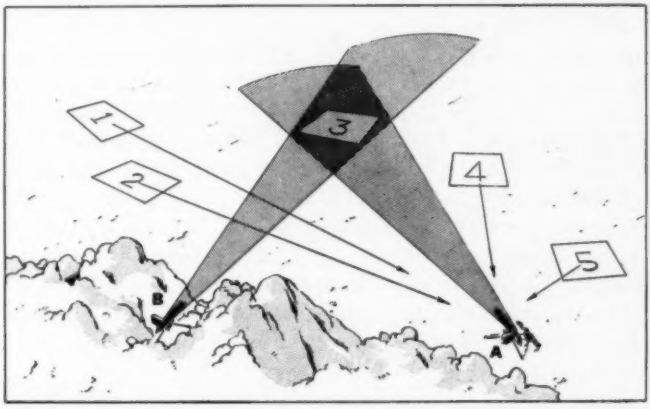


FIGURE 48.—Machine-gun positions are selected which, as nearly as possible, provide defilade from all directions except the gun's sector of fire. The mission of firing on target area 3 can be accomplished with equal ease from position A or position B. Position A, however, is subject to enemy fires from areas 1, 2, 3, 4, and 5, while position B is defiladed from all of these areas except 3, its own sector of fire.

The above considerations apply to both the primary and alternate firing positions. In addition, the alternate position must be selected after consideration of a covered and concealed route of movement to it from the primary position. Movement to the alternate position will be made during the fire fight only in the event the gun is forced from its primary position. A covered and concealed route for such movement is essential.

When the time comes for the section to occupy its firing position, the section leader points out the sector of fire and the exact firing position for each gun. He assures himself that the gun crews know their sectors of fire and that both guns of the section can fire along the final protective line. Within the section, the guns are usually kept together and assigned the same mission. This facilitates control by the section leader, continuity of fire, and ammunition supply.

As soon as the gun positions have been designated, ammunition bearers deliver an initial supply of ammunition to the gun position and the gun is mounted near the position ready to fire the assigned mission on a moment's notice.

Now the job of digging in begins. The section leader digs his foxhole in a position from which he can see both guns of the section and can control their fires. The gun emplacement is dug by the gunner and assistant gunner. In case of sudden attack by the enemy they are ready to open fire immediately even though the emplacement is not completed.

There are two types of emplacement for machine guns: the horseshoe type (see figure 49) and the foxhole type (see figures 50 and 51). When using the foxhole type emplacement, two foxholes are dug for the light machine gun. For the heavy machine gun, three foxholes are dug. In general, either the horseshoe type or the foxhole type emplacement is satisfactory.

However, the horseshoe type emplacement is usually preferred for the heavy machine gun. It allows greater flexibility of fire, and in case of a tank attack, the gun can be pulled into the trench without being dismounted from the tripod. This saves time in taking the gun out of action as well as putting it back into action. The three-foxhole type has the advantage of simplicity of construction, and in loose, sandy soil, provides greater protection against the crushing action of tanks.

For the light machine gun, the two-foxhole type of emplacement is preferable although greater flexibility of fire is possible from the horseshoe-type of emplacement. The simplicity of construction of the two foxholes and the greater protection which they provide against tank action are the

chief assets of this type emplacement for the light machine gun.

While the gun emplacement is being prepared by the gunner and assistant gunner, other members of the gun crew clear a field of fire by cutting down brush and chopping off branches which interfere with sighting or firing the gun. They must be careful to clear away only enough to per-

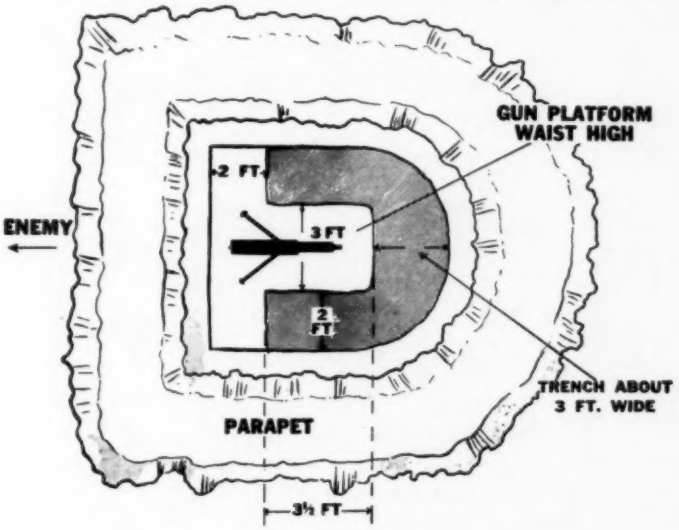


FIGURE 49.—Horseshoe type emplacement for the heavy machine gun. The horseshoe type emplacement for the light machine gun is similar but has a chest-high, square-top gun platform instead of the waist-high T-shaped platform indicated above.

mit an unobstructed field of fire. To cut too much foliage from the vicinity will reveal the position to the enemy. From its firing position, the gun must be able to engage all targets which may appear within its sector of fire and also to fire along the final protective line.

For individual protection, ammunition bearers and messengers dig their own foxholes. Each man is armed with a suitable individual weapon which can be used for close-in defense of the unit.

The gun emplacement and the foxholes for members of the crew must be carefully camouflaged. The concealment and camouflage of the alternate gun position must be as carefully executed as that of the primary position. In concealment, the danger of muzzle blast revealing the gun position must be borne in mind and measures must be taken to prevent the kicking up of dust when the gun is fired.

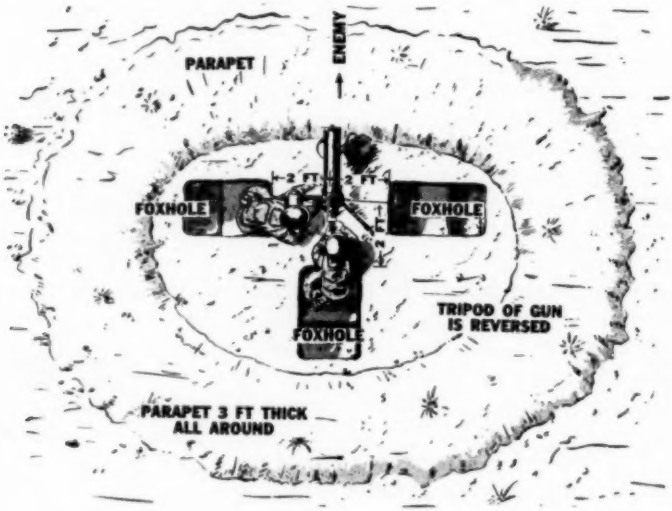


FIGURE 50.—Three-foxhole type emplacement for the heavy machine gun.

To dampen the soil in front of the gun will tend to hold the dust down. Another method is to lay brush or limbs on the ground in front of the gun.

The improving and concealing of a gun position is never completed. Time permitting, there is always something more that can be done to deceive the enemy or strengthen the defense; camouflage can be perfected, protective wire can be strung around the position to prevent the enemy's approach to hand-grenade range, ammunition supplies can be increased.

To confuse the enemy, the battalion commander may order the preparation of dummy positions. These are made to look as much as possible like an actual position—even to the extent of having men in the dummy positions at certain times to make it appear that they are occupied. Dummy

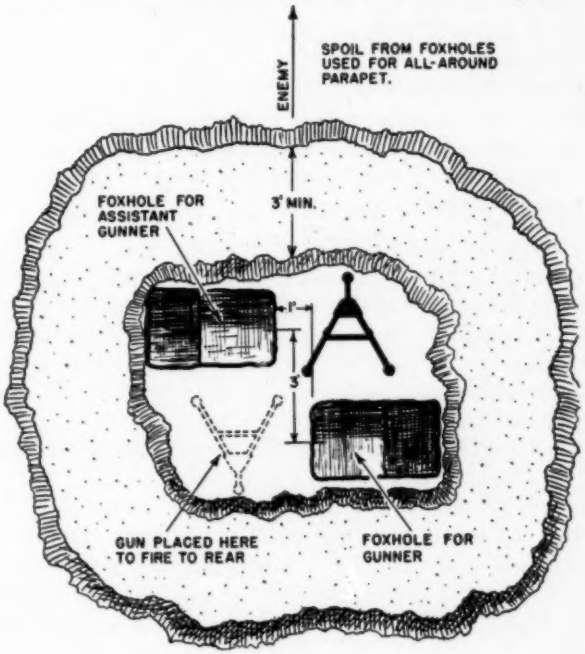


FIGURE 51.—Two-foxhole type emplacement for the light machine gun.

positions should be located at least 150 yards from any occupied positions so that enemy fire directed on the dummy position will not harm the occupied position. In the construction of dummy positions intentional errors in concealment are made to attract hostile attention. In boxing, it's a "feint"; in football, it's a "fake pass"; and in the defense, it's a "dummy position."

While the section leaders supervise the work at the gun positions, the platoon leader is busy with other matters of vital importance to the platoon. After giving his order emplacing the guns, he directs his instrument corporal to establish an observation post from which the platoon leader can observe and control the fire of his sections. He also checks the final protective line along which the tactical wire is being strung by other units. He is particularly careful to check that the wire is strung generally parallel to the final protective line and between it and the front lines of the troops. Thus, when the enemy attacks, the wire entanglement will retard or stop his advance in the area covered by the final protective fires.

By means of data prepared in daylight, both the light and heavy machine guns can deliver accurate fire at night or at other times of low visibility. A range card is made on which to record this data. The range card is a diagrammatic sketch of the gun's sector of fire, showing the location of the gun and of probable targets, and giving the direction and ranges to or elevations necessary to hit those targets. Figure 52 shows a completed range card. The form on which the range card is prepared may be drawn by hand at the time it is needed, or it may be previously prepared and carried by a member of the gun crew. An exact scale is unnecessary. The concentric semicircular lines (arcs) represent hundreds of yards from the gun position. The gun position is indicated at the center of these semicircles and its map coordinates shown.

A range card is made for each gun. The gun is laid along the final protective line and the dial is set at zero. The card is oriented so that it covers the sector of fire of the gun, and a north-south line is drawn on it. Another line is marked on the card running from the gun position and extending in the direction of the final protective line. This line is marked zero to correspond to the setting of the gun dial. At the ranges along this line where grazing fire is obtained the line is marked on the card in heavy black. The final protective line usually is on one limit of the gun's sector of fire and

is taken as the base line. The azimuth of this line is measured and recorded on the range card. The gun is then accurately laid on each point or area selected as a probable target. A line is drawn on the range card, indicating the line of sight from the gun to each of the probable targets. After drawing this line, the dial reading of the gun when laid on that target is recorded on the range card. Similarly, the range or quadrant elevation to hit that target is recorded. Range is obtained by instruments, estimation by eye, or fire for adjustment.

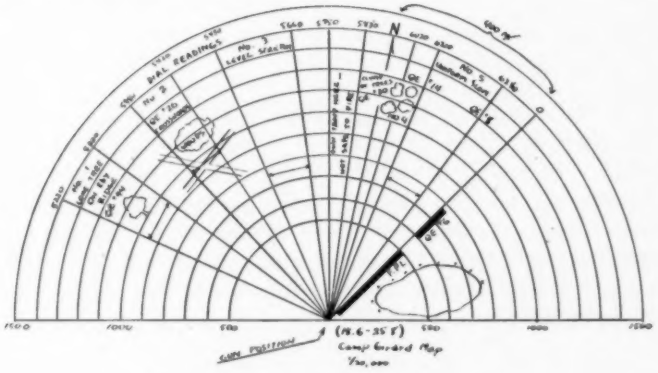


FIGURE 52.—Completed range card.

A small picture or sketch is drawn to represent each of the probable targets recorded. These sketches should be placed along the semicircular line representing the range to that target. When all targets have been posted, the card will serve as eyes in the night, and should be kept at the gun position at all times. The card cannot be used at any other gun position. If the unit is relieved and some other crew occupies this gun position, the card should be left with the relieving unit. A similar range card should be made using the alternate position as the gun position.

Copies of these range cards should be made and delivered to the platoon leader. He in turn makes a sketch of the entire battalion defense area showing all of his gun positions, the missions of each gun, positions of rifle troops in

the area and the location of any obstacles which have been erected. The platoon leader retains this sketch and sends a copy to the heavy weapons company commander.

The rearward machine guns of the battalion, in the meantime, have been performing similar operations and calculating firing data to enable them to accomplish their primary mission—delivery of long-range overhead fire on targets in front of the main line of resistance. Frequently this can be accomplished only by means of indirect fire.

If a satisfactory position can be found, the guns of the rearward platoon are normally fired in battery. This requires that they be emplaced in a line approximately 100 yards long. In delivering indirect fire, accurate firing data must be calculated and placed on the guns before firing. To obtain this data, an observation post is established from which both the guns and the target can be seen. From this observation post an observer can quickly place fire on a target area. He can watch the strike of the bullets and direct adjustments to hit the target. An aiming circle and a range finder usually are available at the observation post for securing accurate firing data.

Indirect fire of machine guns is not as accurate as direct fire and should not be used on point targets. Citing an extreme example, a moving vehicle can be tracked and put out of action by direct machine-gun fire. Indirect fire on such a target would be a waste of ammunition. On the other hand, a definitely located enemy route of approach is a desirable type of target for indirect machine-gun fire. The platoon firing in battery can successfully interdict such a route by covering a portion of it with fire. Definitely located small-unit assembly areas, command posts, ammunition supply points, or other similar installations are area targets which also may be profitably engaged with indirect machine-gun fire. A section of machine guns can place effective indirect fire on an area 100 yards square. A platoon of machine guns firing in battery can cover two adjacent 100-yard squares or an area 100 yards by 200 yards.

Prior to an attack, enemy planes may fly over to reconnoiter the position. Knowledge of the location of automatic weapons is of particular value to them. If the positions are properly concealed, the hostile plane will be unable to determine where the guns are unless the guns open fire. The primary job of machine guns is to protect rifle troops from attack. Their fire on enemy reconnaissance planes will only reveal the positions to the enemy. If the machine guns should give away their positions in this manner, the enemy artillery will probably knock the guns out before the attack starts.

Assume that the plane is an enemy fighter and that it attacks the position. This indicates that the position has been discovered and fire should be directed on the plane. To insure control of this fire, it should be opened only upon order of a leader and not until the plane is within range.

Enemy artillery may bombard the position and all personnel and weapons will have to seek cover. About the time that this artillery fire seems heaviest it may cease in order to permit attack by the enemy infantry. Weapons and men must return to position and be ready to fire promptly when the enemy artillery lifts. Now is the time that the machine guns commence their primary mission of supporting the adjacent troops. Each will engage targets as they appear within the gun's sector of fire. If the enemy succeeds in advancing far enough, the signal will be given for all weapons to shift to their final protective fires. Here is one of the uses of the earlier recording of machine-gun fire data. If this data was accurately prepared, each gun will be able to fire along the final protective line without delay.

As the enemy is slowed down by the tactical wire strung in front of the position, he will be directly in the line of sight of a machine gun. While the machine guns are firing the final protective line, points in the line which their fires cannot reach will be covered by the supporting weapons or by rifle and automatic rifle fire from within the position. Mortars and artillery will lay concentrations of fire into

the gaps left by the machine guns, and the enemy will meet the strongest resistance of his entire attack—a wall of steel through which he must pass to capture the position.

Perhaps the enemy will be forced to withdraw, and it will appear that the defense has been successful. However, hostile tanks may now attempt a break-through of the position. This will prove a real test of the training and courage of everyone in the defense area. Forward machine guns should open fire on enemy tanks only if: the enemy infantry offers no targets; the tanks have open turrets or vision slits; the direction of the tank attack is other than frontal; the ammunition supply is adequate; and firing will not unnecessarily disclose the gun position. If these conditions exist, the tanks should be engaged as soon as they move to within range. As the tanks approach, machine guns should open fire and force them to "button up." That will slow them down considerably. Once the tanks have buttoned up, machine guns should fire at their vision slits and completely blind them if possible.

If it is evident that a tank is headed toward the machine gun, the crew should dismount the gun, put it into the emplacement, and lie down in the emplacement themselves.

While the gun and crew are thus protected, close-in antitank weapons of the unit will handle the situation. As soon as the tank has passed, the gun should be quickly put back into action, and be ready for the enemy infantry who will probably follow their tanks in another effort to break through.

There may be casualties among the gun crew. Remember during the training period how each man changed position on the command, "Fall out, one"? That was in preparation for the casualties. If the gunner is hit all other members of the crew change jobs. During the change-over, the other gun of the section fires faster. The reduced crew resumes action as quickly as possible.

Enemy shell bursting near the gun position indicate that they are getting the range, and the gun had better be moved. That's the reason for that alternate position. Now is the

time to occupy it. Move to it quickly and set up shop promptly. The gun's mission of supporting the riflemen is still the same; the sector of fire is the same; the only change is in the location from which it is done.

Assume now, that the enemy succeeds in penetrating a portion of the battalion defense area. The battalion command post receives a message from one of the front-line company commanders, "My right flank platoon position has been overrun." Perhaps this occurrence was seen from the battalion observation post and preparations are already being made to meet the penetration, when the message is received. The battalion commander decides to counterattack with the reserve company. Proper planning by the reserve company commander makes it possible for the counterattack to be started immediately. Similar planning and coordination by the heavy weapons company commander makes possible a quick shift by the rearward machine-gun platoon to its secondary mission of supporting this counterattack. The supplementary positions prepared before the enemy's attack started were selected in anticipation of this very situation.

Ever since the battalion reserve was designated by the battalion commander, the reserve commander has been making plans for a number of counterattacks in order to meet the enemy wherever he might succeed in overrunning any portion of the battalion defense area. Heavy weapons company fires in support of each of these counterattacks have also been planned. One of the planned counterattacks was in anticipation of this very penetration by the enemy.

Once it is decided upon, a counterattack must be launched quickly. The enemy's first effort after he has penetrated the position will be to reorganize and consolidate the gain he has made. He knows a counterattack will be made in an effort to drive him out, and his only chance of meeting that counterattack is to dig in and establish a strong defense. The more quickly the counterattack can be launched, the less time he will have to accomplish his purpose.

The forward machine guns which have not been overrun will usually continue on their defense missions during the counterattack. The rearward platoon of heavy machine guns will support the counterattack in accordance with the general plan of supporting fires. This will usually be by overhead fire, engaging targets in the area of penetration and in front of the counterattacking force. The light machine-gun section of the reserve company will usually revert to company control as soon as the counterattack is decided upon, and will provide close automatic fire support as the counterattacking force advances.

When the counterattack has succeeded in ejecting the enemy from the battalion defense area, and the enemy has been forced to withdraw from the vicinity, there will be a chance to reorganize the position and prepare to meet the enemy's next thrust.

The reorganization of the position will be generally on the same basis as the original organization. The machine guns will be the backbone of the defense as before. The fires of other weapons will be organized around the fires of the machine guns. Though they obviously would be unable to stand alone, the other weapons would have difficulty in presenting a strong defense without the great fire power of the machine guns to support them. As in all phases of combat, it is teamwork and coordination which result in success.

Our army believes in attack—seeking out the enemy, coming to grips with him, and defeating him on his own ground. Temporary defense is only a means to that end. Sometimes a local defensive position is taken up to deceive the enemy and cause him to attack so that he may be overcome by counterattack from another direction. Whatever the tactical reason for the defense, the machine-gun crews have an all-important job to perform and their teamwork and attention to fine details of combat are important factors toward success in the area they are defending.

CHAPTER 13

Map Coordinate Systems

Components of Army Ground Forces at present use eight different map coordinate systems, and in the interests of closer cooperation between components all officers should understand each system. The eight systems are:

(1) U. S. Military Grid System (FM 21-26, par. 34).

(2) Geographic coordinates (FM 21-26, par. 32).

(3) JAN Grid (see below).

(4) British Modified Reference System (The Mailing List, Vol. 25).

(5) Thrust line (Infantry School Training Bulletin No. 1, Chap. 2).

(6) Point Designation Grid System (see below).

(7) Map Template (see below).

(8) Polar coordinates (FM 21-26, par. 30).

This article discusses three of the above systems: the JAN Grid, the Point Designation Grid, and the Map Template.

The joint Army and Navy grid, commonly called the "JAN grid," is not widely known. It is primarily designed for use during joint army and navy operations. However, it is well suited to other army operations when maps showing no grid other than latitude and longitude must be used, and when secrecy is necessary.

To employ this system of coordinates, the using parties agree upon an arbitrary point of origin which is used as a base reference for calculating their JAN coordinates. Also by mutual agreement, an arbitrary length is established for the sides of each grid square. For example, in figure 54, the agreed point of origin (o) was 85 degrees 20 minutes west longitude and 33 degrees 30 minutes north latitude. The agreed length of the grid sides was 10 minutes. The

order directing application of this grid might have read, "Establish JAN grid, map of MARYSVILLE and vicinity, RF 1/62,500; origin 85 degrees 20 minutes west, 33 degrees 30 minutes north; sides 10 minutes."

The grid square is then divided into 100 squares of equal size, and each of the lines forming this division is numbered.

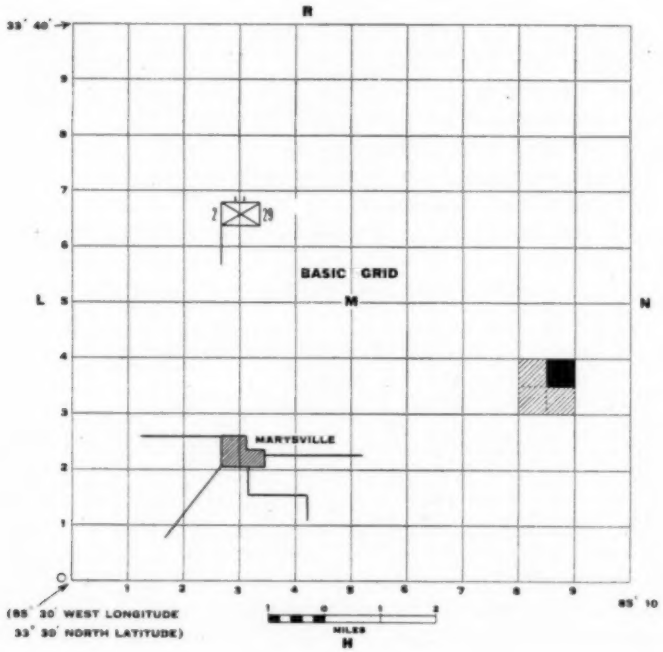


FIGURE 54.—Application of the JAN Grid.

The grid thus formed is superimposed upon the map, placing the point of origin on the map at the intersection of the designated geographical coordinates. The vertical and horizontal lines of the JAN grid are placed parallel to the lines of longitude and latitude already shown on the map. JAN coordinates can now be read in the familiar "read right,

then up" manner. The command post indicated in figure 54 is located at "JAN point 2757"; the shaded area is designated as "JAN area 83"; and the solid black square is designated as "JAN area 8534."

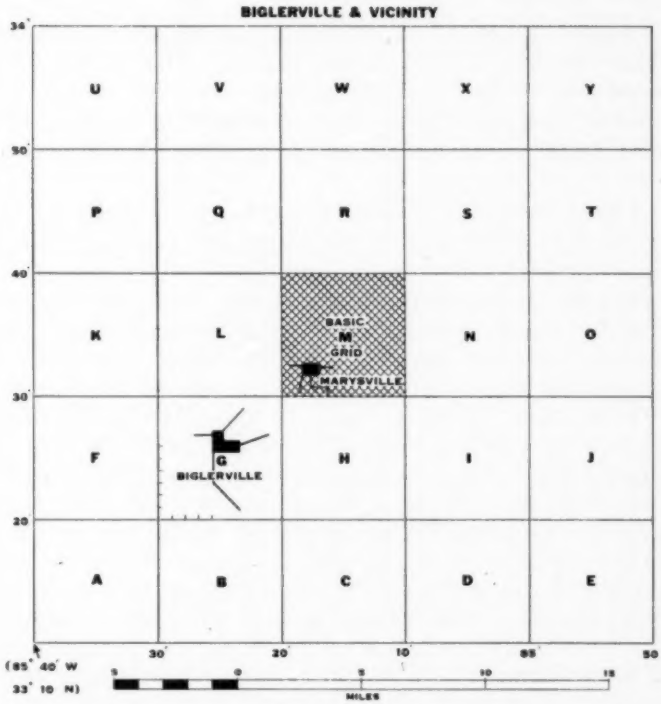


FIGURE 55.—Application of the JAN Grid on an area larger than can be covered by the 10-minute square indicated in Figure 54. Each square shown above is subdivided as shown in Figure 54, and lettered as shown above. The square shown in Figure 54 is indicated above as square M.

If the area covered by the basic JAN square is too small to include the entire contemplated operation, the square may be lettered and similar squares bearing different letters may be constructed adjoining the original, as in figure 55. The origin of coordinates of any of these lettered squares

is the lower left-hand corner of that square. Grid squares are identified by prefixing the appropriate grid letter to the coordinates. For example, the location of the town, BIGLERVILLE, in square G (figure 55) would be designated as "JAN point G 46."

Another arbitrary grid system which will often be found useful is the "Point Designation Grid." This system was developed by field artillery personnel and is extensively used by them. It is particularly applicable to point or target designation for artillery firing when photomaps are used.

This grid consists of vertical and horizontal lines spaced 1.8 inches apart. The 1/20,000 coordinate scale may, therefor, be used for determining and plotting the points. Vertical and horizontal lines are lettered arbitrarily except that the center vertical line is always lettered A and the center horizontal line is always lettered M. The grid is oriented on the map or aerial photo by placing the point of intersection of the AA line and the MM line over the exact center of the map or photo. The angle at which the grid is superimposed must be designated and may be changed from time to time in order to preserve secrecy. One method is to place the horizontal lines of the grid parallel to the bottom edge of the map or photo. Another method would be for the grid to be turned so that the AA line or the MM line parallels a particular azimuth, or turned so that one of these lines passes through a specified point. Any method of designating the angle at which the grid is to be applied is satisfactory so long as it is known by all parties who are to apply it. This grid may be drawn on the map or photo or it may be applied by means of a transparent template such as the map template, M1 or M2, described in another part of this article.

To use the point designation system in plotting coordinates, the lower left-hand corner of each square is used as the point of origin in determining the coordinates within that square. In figure 56, two of the points indicated have the intersection of lines AA and MM as their point of origin,

and the third point has the intersection of lines LL and MM as its point of origin. Each square is designated by reference to the lines forming its left and bottom sides respectively, for example, "Square AM" or "Square LM." In expressing point designation coordinates, the letters designating the square are prefixed to the numbers of the coordinate as indicated by "AM 85," "LM 48," and "AM 8026" in figure 56.

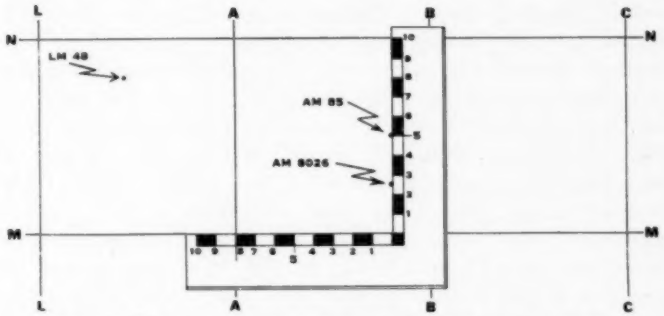


FIGURE 56.—Application of the Point Designation Grid.

The map template M2 is an item of issue to each officer in the infantry regiment. This template is made of transparent plastic and is marked as indicated in figure 57. The map template M1 was an earlier model than the M2 and may be used in the same manner. The templates M1 and M2 are alike except that the M1 is ruled to outline the small, numbered squares within the larger, lettered squares.

To direct the orientation of the template on the map or aerial photo, certain arbitrary designations are made and must be known to all personnel who are to exchange template coordinates. For example, the orientation might be, "Hill 703—CR 642; I—IX." In this case, Hill 703 and CR 642 must be points easily located on the map or aerial photo. The orientation refers to the straight line (either drawn or imaginary) passing through these two points. The Roman numerals of the orientation refer to two of the nine points designated by Roman numerals on the template. By laying the template on the map or aerial photo so that the summit

of Hill 703 coincides with the point marked "I" on the template, and turning the template so that the line through Hill 703 and CR 642 coincides with the line through points I and IX on the template, the template will be oriented on the map or photo. Any point on the map or photo which is covered by the template can be referred to in terms of template coordinates.

Template coordinates consist of two parts: a letter designating the large lettered square marked on the template, and a number designating the smaller square within the lettered square. The numbers of the small squares are determined by counting from bottom to top of each column. As an aid in determining the number of a given square, the small squares along the left column and the bottom line of each lettered square are labeled with their appropriate numbers; all others of the small, numbered squares are indicated by only a perforation in the center of the square. The letter portion of template coordinates is always spoken in terms of the phonectic alphabet, (as "Dog 42") but written as a capital letter (as "D 42").

Several widely separated orientations can be designated for use during a particular operation over an area larger than that which can be covered by the template at one time. These orientations can be numbered to designate which was used in establishing a particular set of coordinates. Thus, coordinate "3 D 42" would mean that the point indicated was in square 42 of lettered square D when the template is laid on the map as stated in the previously designated number 3 plan of orientation.

Map template coordinates, of course, have no meaning unless the orientation which was used in establishing the coordinates is known. Secrecy of their meaning, therefore, can be maintained even though the coordinates themselves should fall into enemy hands.

Another interesting method of applying the map template further enhances the secrecy of the information conveyed.

FIGURE 57.—Map template, M2, superimposed on a map. Note that within each of the large lettered squares, each number and each perforation represents one of the 100 smaller squares. The numbers of these small squares are determined by counting from bottom to top of each colmun, beginning with the left-hand column.

This method is applicable only to use on gridded maps. One of the small squares on the template is designated as the master square to be used during the operation. For purposes of illustration, assume this to be square M 36. The template is laid on the map with this square over the point to be designated. The template is turned so that its longer side is parallel to the horizontal grid lines of the map. Two prominent terrain features are located and the grid coordinates and template coordinates of these two features are transmitted. The recipient of this message can lay his template on his map so that the template coordinates given in the message coincide with grid coordinates given in the message. By looking at the map area which is under square M 36 of the template, he will know the point referred to in the message.

CHAPTER 14

The Slope Scale

The value of a march graph in planning a troop movement cannot be challenged, but the preparation of the graph is a time-consuming process, nearly half of which is spent counting squares and plotting points, so that the slope lines representing rates of movement will be accurate. This article presents a time-saving expedient, the "slope scale."

Basically, a slope scale is nothing more than a homemade protractor. The scale is made on a piece of cardboard which has one straight edge, called the "slope edge," about six inches long. The entire piece of cardboard need not be more than six inches by four inches and may be smaller. Except for this sheet on which the slope scale is to be drawn, no materials are required other than those needed to prepare any march graph.

A slope scale should be prepared before any of the contemplated troop movements are plotted on the graph. To prepare: first, mark the time and distance scales on the edges of the graph paper as in the preparation of any graph. For purposes of description, assume these to be: one vertical square equals two miles and four horizontal squares equal one hour. Next, decide upon the rates of movement which are to be used. The information given in the route reconnaissance report on road conditions will usually dictate these rates Suppose, for example, that it is decided to use the normal night rates of ten miles per hour for motor elements and two miles per hour for foot elements. Plot, but do not draw, a slope line anywhere on the graph to represent a ten-mile per hour movement. (See figure 58.) This slope line should be checked very carefully for accuracy. Several points should be plotted and a

straightedge or ruler laid along the line to insure that the slope line passes through every point plotted. It is better not to start this slope line from the left edge of the paper. Later steps will show the reason.

The second step is to place the slope edge of the cardboard along the plotted slope line as shown in figure 59.

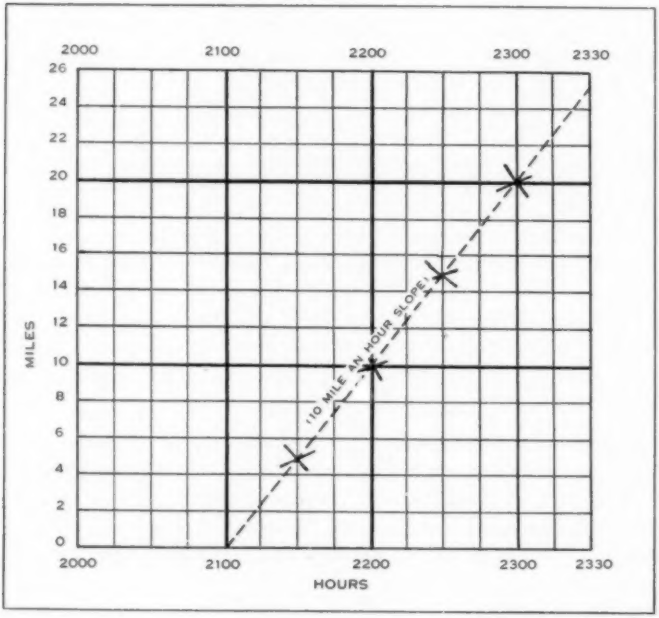


FIGURE 58.

In the third step, a line is drawn near the bottom of the cardboard to coincide with a horizontal line on the graph paper. This line is marked "Base line for 10 mph." The scale of the graph for which the slope line is prepared should also be marked on the face of the cardboard. (See figure 60.) If the slope plotted on the graph had been plotted from the left edge of the graph paper, it would have been difficult to draw this base line accurately.

The same process should now be repeated for the two-mile per hour rate which the foot elements will use in this night movement. The slope scale is then ready for use.

Thereafter, any time it is desired to draw on this graph a slope representing a movement of either ten or two miles per hour, place the proper base line for the slope directly

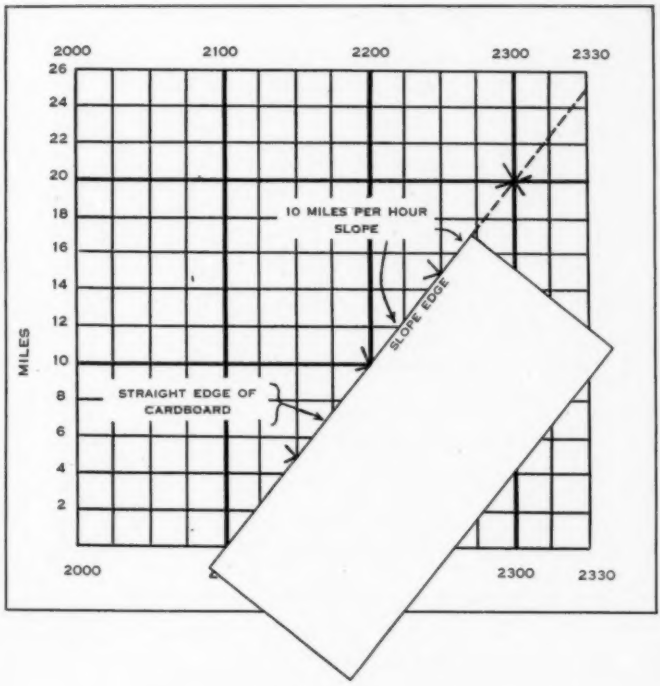


FIGURE 59.

over a horizontal line and draw the slope on the graph using the slope edge as a straightedge. Once the slope scale is prepared it will not again be necessary to plot a slope line in the usual manner, thus eliminating the most time-consuming element in constructing a march graph. It will be found, after a little practice in preparing slope scales,

that the time required to construct one is well offset by the time saved in its use.

Figure 61 shows a slope scale which is issued to students at The Infantry School. It will be noted that the base lines do not coincide at the edge of the cardboard. If they did, it would be difficult to aline the base line with a horizontal

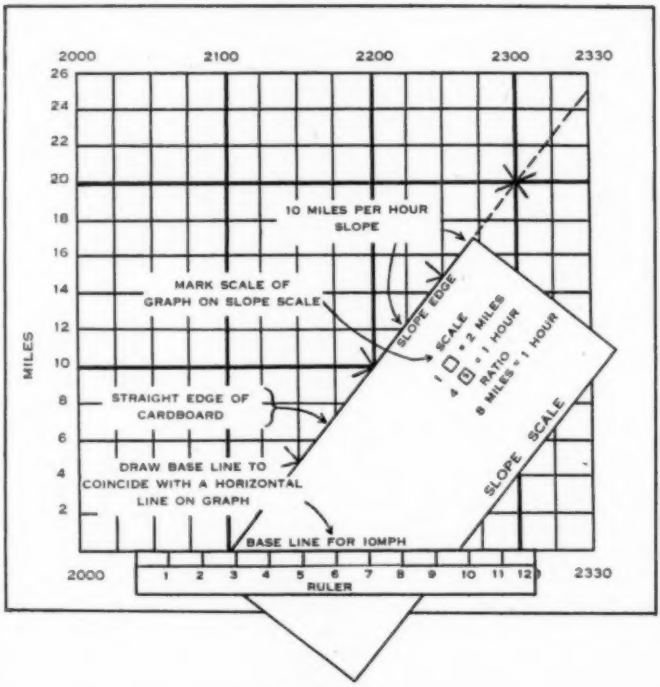


FIGURE 60.

line on the graph paper. It will also be seen that none of the base lines pass through the corner of the cardboard. This is done in the interest of accuracy, for a base line passing through the corner of the cardboard is not easily alined with a horizontal line on the graph paper.

The scale of the graph for which the slope scale is prepared is marked on its face. It must be remembered that a

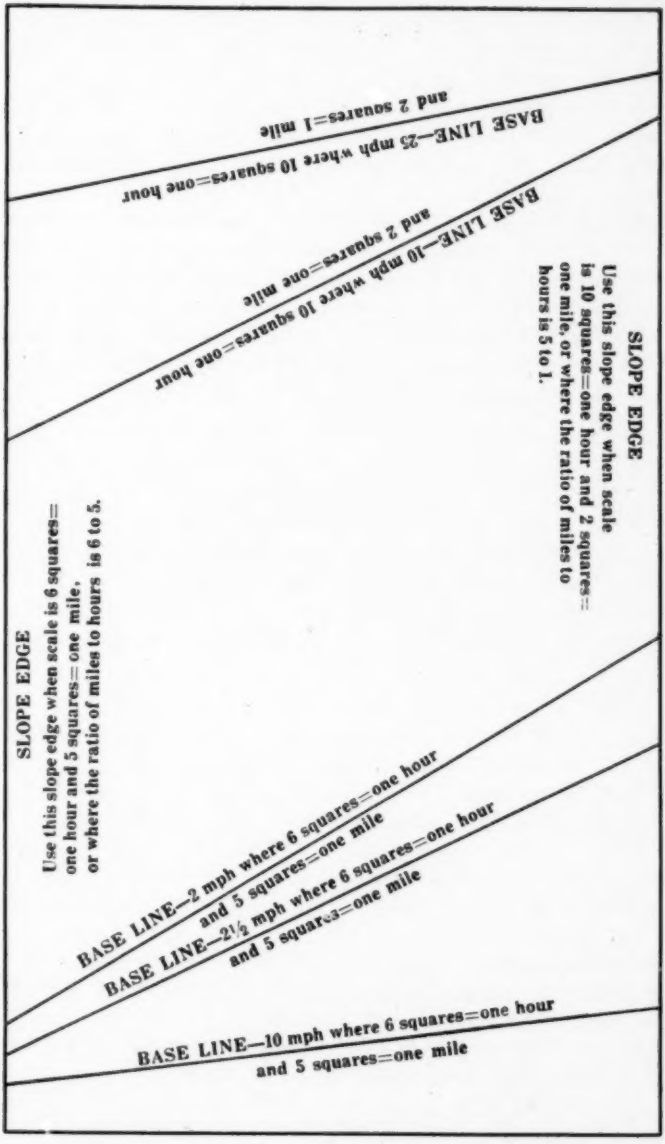

SLOPE EDGE
Use this slope edge when scale is 6 squares=one hour and 5 squares=one mile, or where the ratio of miles to hours is 6 to 5.
SLOPE EDGE
Use this slope edge when scale is 10 squares=one hour and 2 squares=one mile, or where the ratio of miles to hours is 5 to 1.
BASE LINE—2 mph where 6 squares=one hour and 5 squares=one mile
BASE LINE—2½ mph where 6 squares=one hour and 5 squares=one mile
BASE LINE—10 mph where 6 squares=one hour and 5 squares=one mile
BASE LINE—10 mph where 10 squares=one hour and 2 squares=one mile
BASE LINE—25 mph where 10 squares=one hour and 2 squares=1 mile

FIGURE 61.

slope scale will work only on graphs having the same scale as the one for which it was prepared, or where the ratio of miles to hours is the same. The slope scale prepared in the example given above could not be used on a graph where the scale is two vertical squares equal one mile and four horizontal squares equal one hour, because this scale would result in a different angle between the slope edge and the horizontal lines of the graph. However, it could be used on a graph where one vertical square equals one mile and eight horizontal squares equal one hour, because in this scale the ratio of vertical to horizontal distances on the graph is the same as that for which the slope scale was prepared, and the angle between the horizontal lines and the slope line would remain the same.

It is not necessary to carry several ready-made slope scales as one can be prepared when needed. If cardboard is not available, a sheet of paper will suffice so long as it has one straight edge. However, the edge of a piece of paper will not serve as well for a straightedge when drawing slope lines. This can be overcome by indicating several points along the slope edge and connecting them with a ruler. The result will be just as accurate.

CHAPTER 15

Preview Of Film Strips

Nearly all training literature which has to do with film strips emphasizes the importance of a careful preview. Previews should be made by plans and training officers to decide whether the strip should be included in the unit training program; by company commanders to determine at what period in the company's instruction the strip should be presented; and by instructors to coordinate the showing of individual frames of the film strip with other instruction in the same general subject.

It is essential for the instructor, in particular, to make a careful preview prior to the time he uses a film strip before a group or class. If he does not make such detailed preview, he will either find himself reading the film strip's captions aloud like a parrot, or wasting valuable time in scanning each frame as it appears before the class. This slipshod method, more often than not, will result in his calling attention to some minor detail which happens to catch his eye, while he misses major points which should be emphasized.

The film strip as a whole is planned as an instructional unit. The sequence has been carefully considered with a definite teaching goal in mind. When the subject of the strip is similar in scope to the scheduled training period, and when time permits, the entire film strip should be shown. Most film strips are suitable for one-hour periods, allowing for usual breaks, if the instructor has previewed the strip and is prepared to discuss it thoroughly and intelligently.

In many cases the film strip may apply to only one phase of the subject that must be covered during the period, which makes it desirable to show only those frames that are most pertinent. Sometimes certain frames from two or more film strips should be combined. This cannot be done with-

out preview of film strips on applicable subjects, or those referred to in the subject schedule for the period.

Film strips are based on official training literature, usually field manuals or technical manuals. The strips, however, may not fully agree with the edition of the manual in the organization files. Older film strips may have been

FIGURE 62.—The two ends of the film strip are held in place by the scissors and book, and several frames are exposed above the sheet of white paper. These frames can be viewed through the small magnifying glass, and the previewer's other hand is free to write notes of his comments concerning each frame of the film strip.

issued prior to a change to a manual or a revision, and may thus be outdated on certain details. Recent film strips may be released before the changes or revised manuals are distributed. In the latter case the film strip may be more up-to-date than the manual on hand. This is especially true of film strips issued since the latest edition of FM 21-7, and announced from time to time in War Department Training Circulars and Army Ground Forces Weekly Directives. Preview of the film strips will enable the instructor to call attention to details that are incorrect according to present

technique or tactical employment, or that represent some new development which has not yet appeared in printed training literature. Comparison of the date of publication of the film strip with that of the manual will indicate which is the more recent and therefore the more accurate.

The film strip may be previewed without the use of a projector. The small size and convenient length of the strip

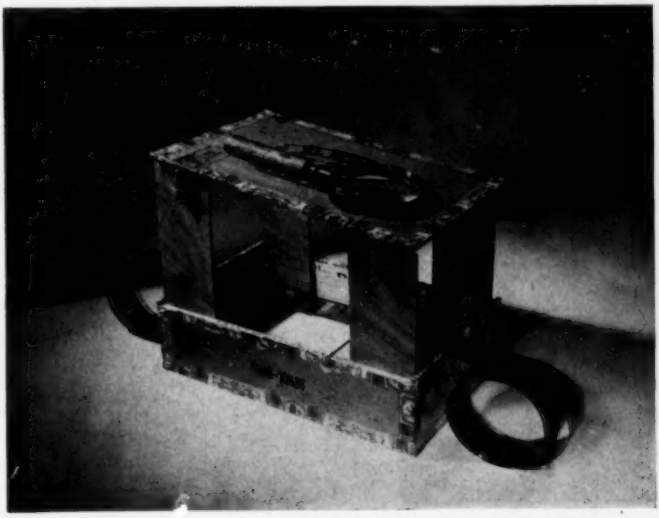


FIGURE 63.—T is improvised film strip viewer was made from an old cigar box and a few pieces of plywood. The magnifying glass is placed over a hole in the lid of the box. A white sheet of paper lies in the bottom of the box to reflect light, and two paper clips attached to the top edges of the box ends act as guides to hold the film strip in position.

(usually 3 to 6 feet) make it easy to handle while unrolling, so that the various frames may be seen.

When a plans and training officer wishes quickly to determine whether the film strip is suitable for a scheduled period of instruction, the strip may be held in the hands a few inches above a white sheet of paper or in front of a white wall. By rolling in with one hand and rolling out with the other, keeping three or four frames exposed be-

tween the rolled ends of the strip, the entire sequence may be rapidly reviewed. However, the small size of the frames —approximately 1 inch by ¾ inch—makes it difficult to read captions printed in the smaller type fonts, and many details of the pictures or drawings cannot be clearly seen unless some magnification is provided. A small reading glass is a great help, especially when the instructor wishes to make careful notes concerning each frame.

The following is a simple technique: Place the curled-down edge of the front end of the strip over a large book about three inches thick, or a block of wood of similar thickness, unroll the strip toward you for a distance of about six inches, and place a pair of shears or a similar long object, of sufficient weight to hold down the film, through the roll to secure it against rolling up. A white sheet of paper should be placed under the exposed portion of the strip. The light from a desk lamp or a nearby window gives sufficient reflection from the white background upward through the film to provide good delineation. The hands are not required to hold the strip, which makes it possible to hold the reading glass and to make notes on a pad at the same time. (See figure 62.)

A simple film strip viewer may be easily constructed from a cigar box and a few strips of heavy cardboard or thin plywood. Such an expedient is shown in figures 63 and 64. The instructor is thus relieved of the fatigue incident to holding the reading glass over each frame. With the equipment set up before him at his desk, in a convenient location for viewing the strip, he unrolls the film gradually with one hand while writing his notes with the other.

This improvised device may be modified to suit the instructor's preference. The time necessary for making it will be more than compensated for by the saving in eyesight and disposition when previewing film strips. Also, the use of such an aid to previewing will lead to a more thorough and conscientious examination of the many film strips which may be employed in the various phases of individual and unit training.

As another aid to previewing, the preparation of a series of illustrated references, in poster form has been authorized. These posters are called "War Department Illustrated References," and are numbered identically with the film strips which each one presents. Each poster shows all frames of one or more film strips, and is of sufficient size to show each frame clearly. The primary purpose of these

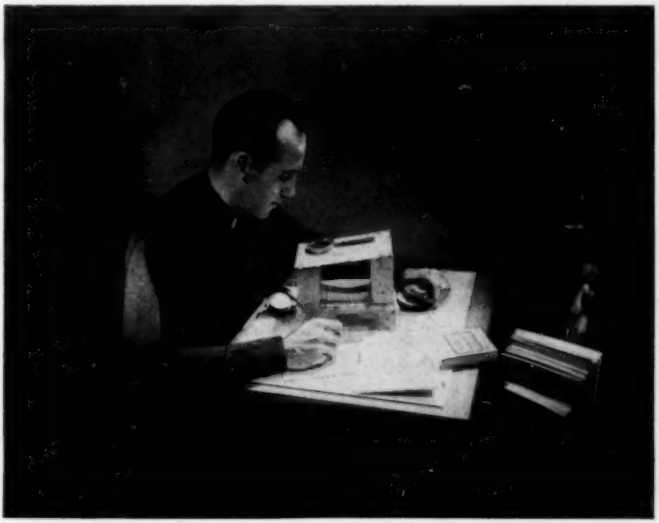


FIGURE 64.—The improvised film strip viewer illustrated in figure 63, is here shown in use. This device permits the person previewing the film strip to have both hands free to prepare notes and refer to training literature related to the film strip.

film strip posters is to provide a convenient means of previewing the film strips. An additional use for these posters is display in day rooms or barracks where they will serve as a means of review of training subjects already presented. The posters should be displayed after the film strip has been used in instruction. The present program calls for the production of posters covering only a limited number of the most recent film strips, and preview of the film strip itself will still be necessary in the majority of cases.

CHAPTER 16

"——And Destroy or Capture Him"

One of our infantry field manuals contains a paragraph* that should be blazoned in the heart of every infantryman. It reads: "In the attack, the primary mission of infantry is to close with the enemy and destroy or capture him." These words tersely express the distinctive capabilities of the arm in offensive operations. All the gruelling hardships of weeks and months of arduous preparation, the trudging and slogging forward through endless miles of sand, stones, mud, or jungle, the merciless pounding by hostile bombardments with no chance to fight back, and the seemingly interminable waiting for the moment of the attack are culminated in the few fateful hours when success depends upon carrying out just this mission.

The wording of the text is significant. To close with the enemy is essential, but is an incomplete fulfillment of the mission. " . . . and destroy or capture him" is the essential corollary. Here we have one alternative: unless the enemy is destroyed, he must be captured. Those who are not killed must become our prisoners. Those who escape only testify to the degree of our failures.

Thus the capture of enemy personnel is a definite feature of infantry combat. True, the war in the Pacific theaters has been characterized by many instances where there has been no alternative to the complete destruction of the enemy. Yet, even there, as operations of larger scale are undertaken, more and more enemy are captured.

Our intelligence needs require that prisoners be captured throughout the period when we are in contact with the enemy. When we are not attacking, patrols are sent out or

* Par. 150, FM 7-40.

raids are undertaken with the specific purpose of obtaining prisoners. When the enemy attacks, the capture of infiltrating elements or the seizure of prisoners during our counterattacks serve to furnish prompt information of fresh troops that the enemy may be using.

Reports from current theaters of operations stress the importance of proper handling of prisoners by the capturing units. If useful information is to be obtained from a prisoner, he must be conducted to the rear at once, and he must be questioned by trained interrogators only. Until he is questioned, he should be given no food, drink, cigarettes, or other refreshment which might help to restore his mental poise. He must not have had a chance to talk to any other prisoner. Any documents he may have had on his person when captured must not become separated from him, since these are essential leads in directing the course of his interrogation. Lack of appreciation of these requirements by capturing units has resulted in failure to obtain vitally needed information.

Numerous cases are also reported which show failures on the part of both enlisted men and officers to take a realistic view of the simple fact that a prisoner remains a potential enemy, constantly watching for an opportunity to destroy his captor or otherwise to effect escape. The treacherous expedients employed by Japanese personnel have been given wide publicity, yet in a very recent operation several of our officers were killed as a result of the well-known trick of a grenade concealed in a loin cloth.

In training prior to combat, troops become inured to many of the hardships and hazards of battle. They attain proficiency in the use of their weapons. They learn to maneuver and to close with the enemy. However instruction in regard to the capture and handling of prisoners cannot be accurately simulated. During maneuvers, personnel of the opposing force may be declared prisoners by an umpire. Yet the capturing soldier has fired no bullets, and has drawn no blood with his bayonet; the prisoner to his credit has not

surrendered as a last alternative to killing or being killed, and prisoner and captor harbor no hostile intentions toward each other.

It is the responsibility of infantry commanders and leaders to provide the members of their organizations with a practical working knowledge of the techniques employed in the capture and handling of prisoners in various situations that are likely to occur in combat. Training schedules during basic training allocate little time to this subject. Additional time should be found for the purpose at every opportunity, during subsequent phases of training. Occasional short periods of but a few minutes each may be devoted to illustrative examples from official or authentic press sources, supplemented by brief, well-rehearsed and realistically acted demonstrations of simple phases of the subject. Men should be questioned frequently and required to tell what they would do if placed in a given situation involving the capture or guarding of prisoners. The following figures and legends suggest appropriate situations.

FIGURE 65.—When the enemy surrenders, make him come to you while you remain behind cover. Do not move from behind cover and go to him. Not only might his surrender be a part of a ruse, but other enemy nearby might be unwilling to surrender and open fire on you.

FIGURE 66.—Some of the enemy might desert and offer to surrender without force. Because the desertion might be a ruse instead of genuine, the deserters should be treated by capturing units in the same manner as any other captured enemy. To intelligence personnel, however, a deserter has special significance, and the fact that he is a deserter should be noted for their attention. Since the enemy might plant fake deserters, bearing false documents and giving false information, interrogators note on their reports of examination, "Information from deserters."

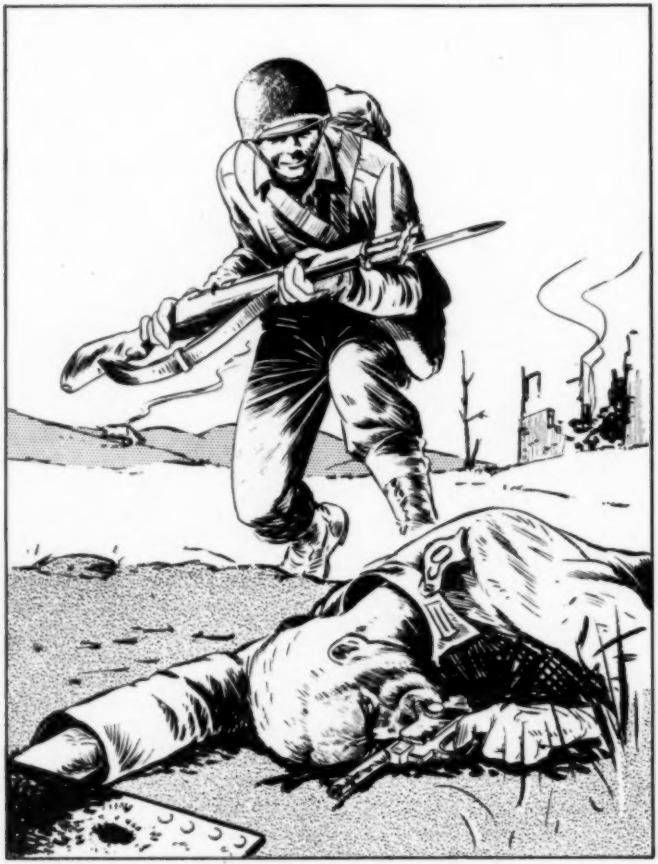


FIGURE 67.—Approach a wounded or dead enemy cautiously. He might only be pretending to be wounded or dead, and hope to overcome you by catching you off guard.

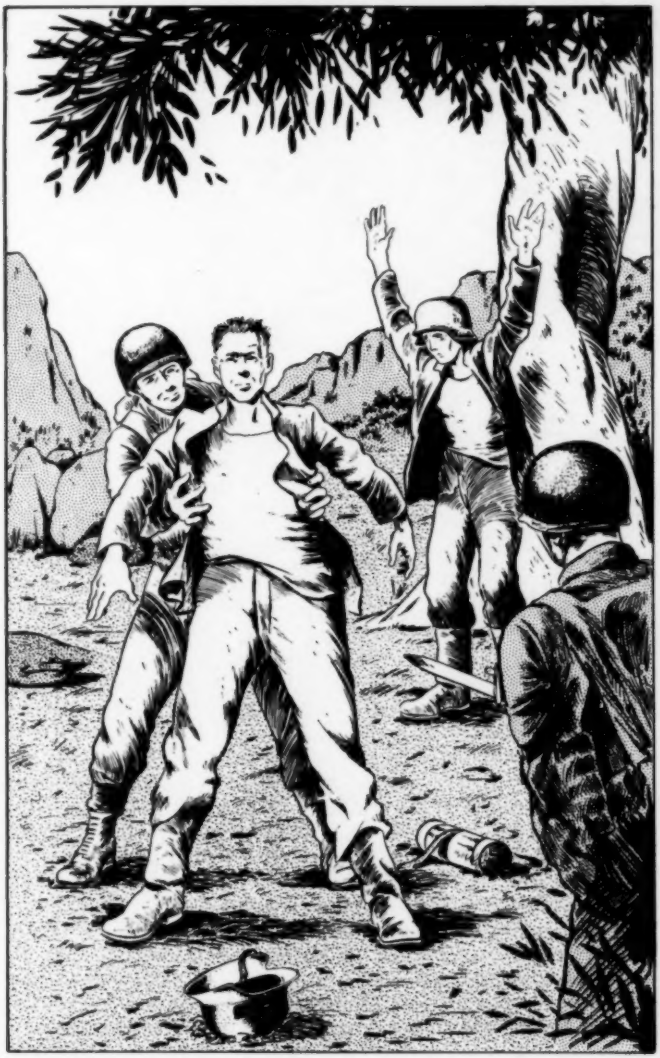


FIGURE 68.—As soon as prisoners are removed to a covered position, they should be searched for concealed weapons. To do this, one captor guards while the other conducts the search. If practicable, documents of military value found on prisoners should be collected by the capturing unit (under the supervision of the intelligence officer or members of an attached interrogation team), marked with the name and identification of the prisoner from whom taken, and sent to the rear with the prisoner. Personal effects of no military value should be left with the prisoner.

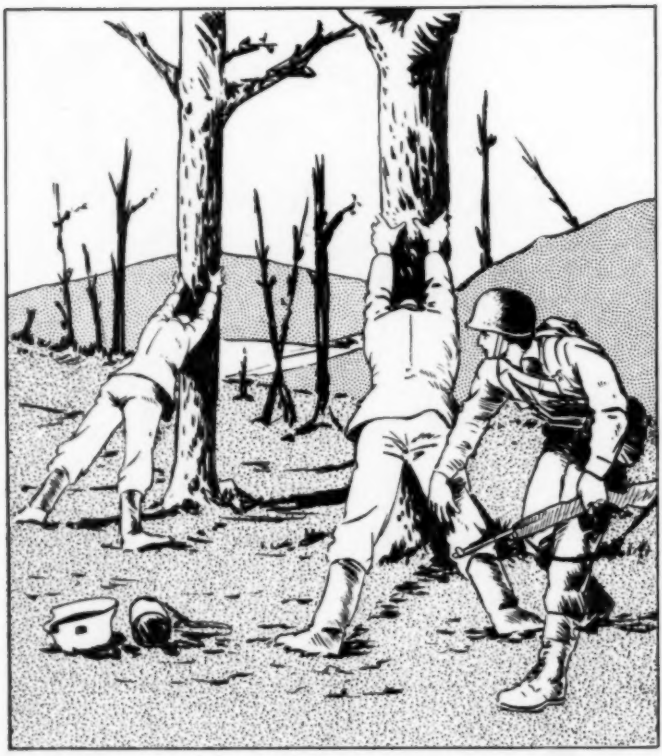


FIGURE 69.—You may be alone when you make the capture. If so, take every precaution to prevent your prisoners from overpowering you or escaping while you search them. One method is illustrated above.

FIGURE 70.—Wounded prisoners of war, either walking or carried, are evacuated under guard. Unwounded prisoners may be used to carry or assist the wounded prisoners in this movement.

FIGURE 71.—As soon after capture as practicable, prisoner officers, noncommissioned officers, privates, and deserters are segregated by the unit effecting their capture.

FIGURE 72.—Prisoners of war must not be allowed to talk among themselves nor to anyone else other than authorized interrogators.

FIGURE 73.—Indicate by your manner and word that you expect absolute obedience from your prisoners. Keep your bayonet fixed at all times. If there is any chance of doubt in the prisoners' minds that your rifle is loaded, have someone else stand guard while you reload in the presence of the prisoners.

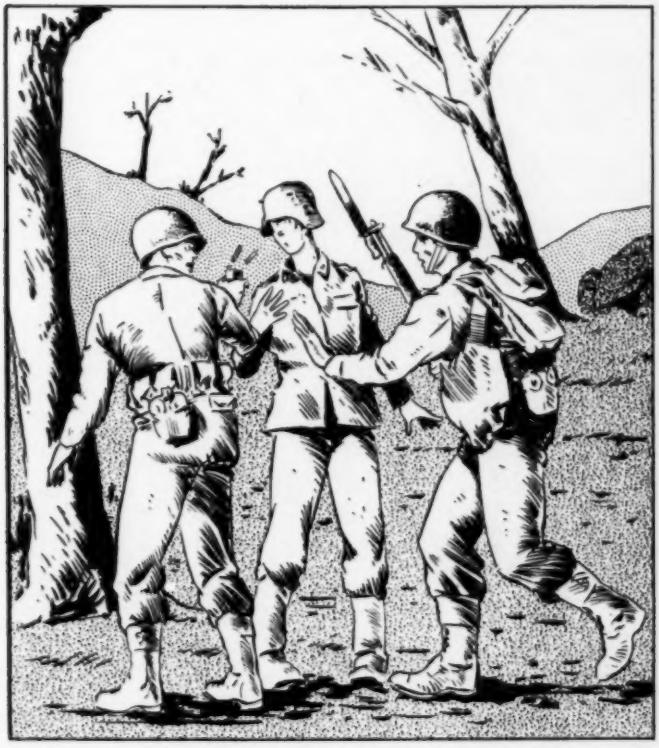


FIGURE 74.—Prisoners must not receive food, drink, or cigarettes prior to interrogation. To do so would aid the prisoner to recover from the shock of battle, and would decrease his value as a potential source of information.

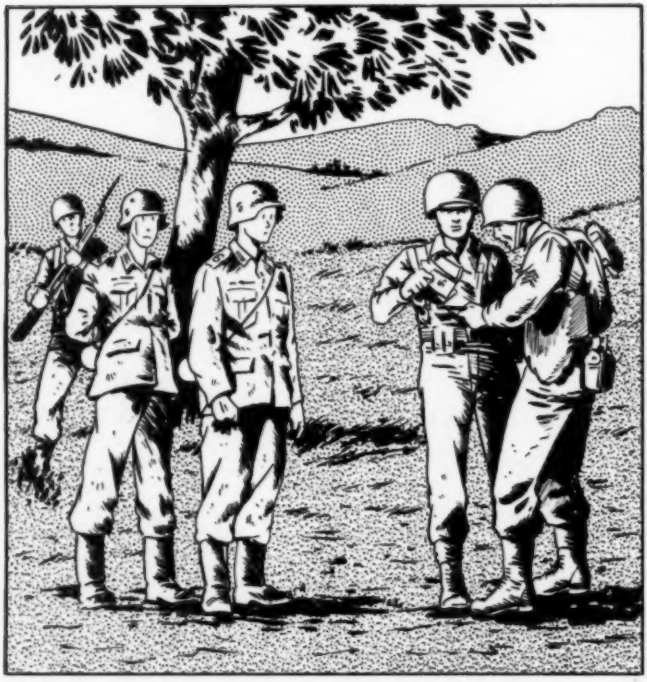


FIGURE 75.—Prisoners of war are conducted to the rear under guard. The leader of the prisoner escort is given a memorandum stating when, where, and how the prisoners were captured, and the unit making the capture. Prisoners' documents marked with the prisoner's name and identification are carried by the guard, so that the documents will be available to the interrogators at the time the prisoners are questioned.

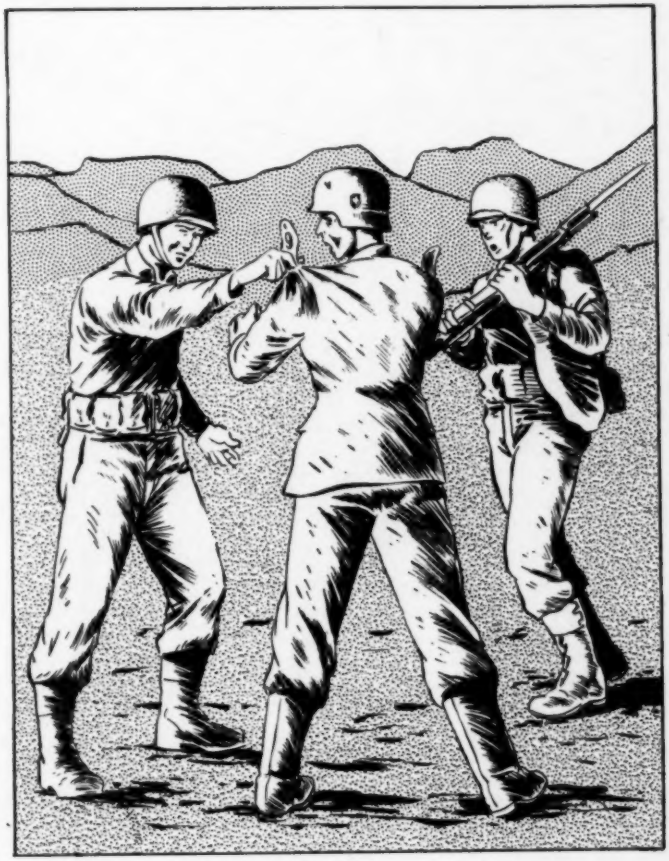


FIGURE 76.—Prisoners must be protected from acts of violence, insults, and public curiosity. Protect your prisoners against souvenir seekers.

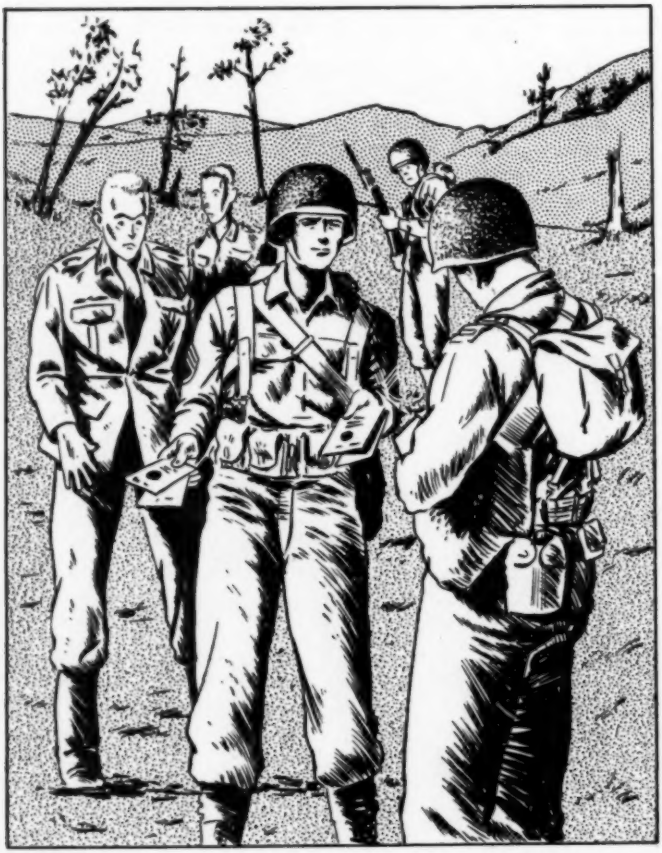


FIGURE 77.—Interrogation of prisoners will be conducted only by proper authority. If an interrogation team is present, only members of the team will examine prisoners. In the absence of interrogation teams, only unit intelligence personnel under the supervision of the battalion or regimental S-2 will interrogate prisoners.

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